Textile World

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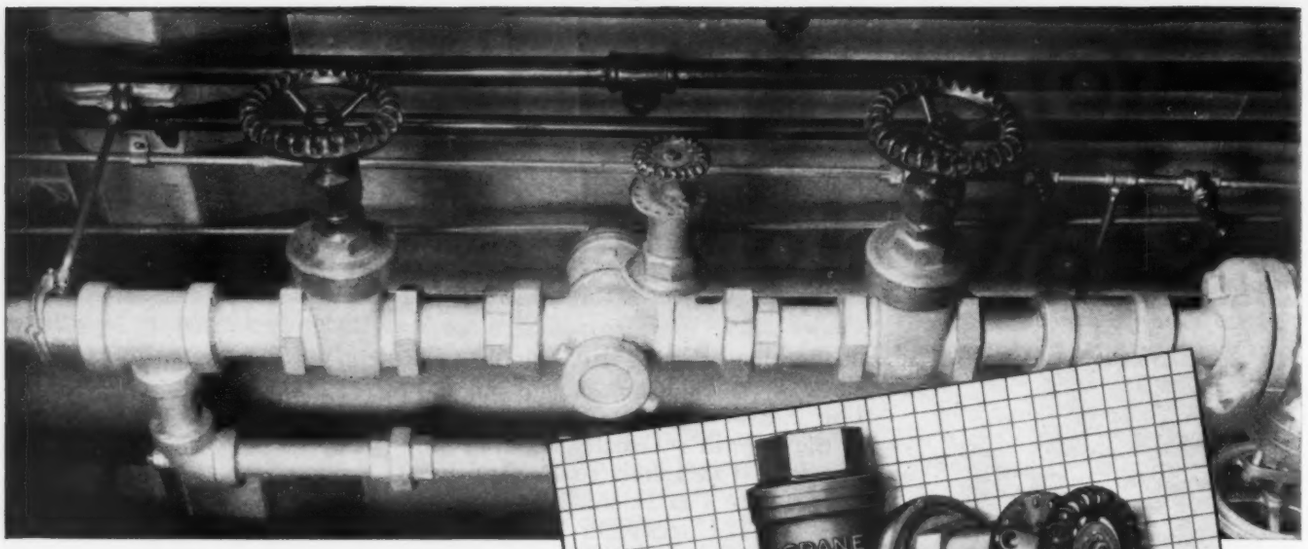

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Textile World

March, 1936

▼

Editor: DOUGLAS G. WOOLF

A Dividend-Paying Enterprise

DURING all the tumult and the shouting of the last few years, it was quite natural that the textile industry should overlook some really important matters.

One of these has been the development taking place in textile education through the auspices of the Textile Foundation, under the direction of Frederick M. Feiker, and with the cooperation of the deans of the textile schools themselves.

We doubt that one textile manufacturer out of 100 has given any particular thought to this program. And yet, we feel perfectly safe in saying that no one of the momentous events which have been occupying the industry's attention since 1933 has any greater or more permanent significance for its future than has this educational effort.

■

When Mr. Feiker's report was made public nearly two years ago, we stated in these columns: "This is just the beginning. It is rightly called a 'report for action.' The proper follow-through during the next few years will yield rich dividends to the textile industry."

What we like particularly about this job is the thoroughness of the "follow-through." Too often a perfectly magnificent piece of research work becomes a dust-gathering book in a library. In this case, however, the Foundation, Mr. Feiker, and the deans have stayed with the job—and are still staying with it. The Foundation is continuing to invest its money and interest in it—and consequently we are convinced that those dividends are in the accumulation stage.

To date, the broad results may be summarized as:

1. ANALYSIS OF THE PROBLEM: This was accomplished in the original Feiker report. It took the form of inspiring, and yet detailed, specifications for the textile educational job of the future.

2. COOPERATION AMONG THE SCHOOLS: The importance of the regular conferences in which the deans of the textile schools participate cannot be over-emphasized. In no other way than through effective cooperation between these men can there be put into action an "articulated" educational plan for the industry, as originally outlined by Mr. Feiker.

3. PROGRESS IN EDUCATIONAL METHODS: Naturally most of these developments *are* in the progress stage. They include changes taking place at the individual schools, and broad plans affecting all schools. Important in the latter classification are the coordination of teaching materials in textile technology and the preparation of materials for teaching a group of subjects in the field of textile economics. Both these developments are reported elsewhere in this issue. Incidentally, we regard as extremely important the expansion into economic subjects. Some of the schools have certain courses of this type in their curricula but the surface has hardly been scratched.

■

In commenting on the report two years ago, we stated that it was more than a report on textile education—and was in fact a report on the textile industry. We are even more firmly convinced of that today than we were then.

The industry as a whole, and every man in it, have a stake in this educational program. Consequently we suggest to the individual manufacturer that he expose himself to it, primarily through the dean of the nearest textile school; and we suggest to the Textile Foundation that it make every effort to attract and hold the interest of manufacturers in the work as it progresses.

As bait, we repeat the promise of dividends.

The Editor Says:

Our Helpful "Friends"

THE recent Ellenbogen Bill hearing furnished, in its aftermath, an example of the ease with which intersectional strife can be stirred up in the textile industry—and for nothing at all.

Noting that "New England textile interests are waging a fight in Washington for a textile control bill" on the basis that "the problems of the industry can be solved only on a national scale," a responsible southern newspaper declared editorially that "this attitude comes strangely from a section that is most opposed to the nationalization of other problems, such as agriculture."

"It all depends, in other words, on where you sit," the editor sagely remarked, decrying the fact that "here are the textile men of New England preferring national regulation to preservation of State or individual liberties."

All of which would have been important, if true. The fact is, however, that New England textile men did no such thing. Governors of New England States, and representatives of Governors, and others seeking political capital, appeared in behalf of the Ellenbogen Bill—but New England textile manufacturers opposed it just as much as did southern manufacturers.

It was an honest mistake on the part of the editor—and was due to the misplaced zeal of men who profess friendship for the textile industry.

This industry can feelingly exclaim, with Villars: "Defend me from my friends; I can defend myself from my enemies."

■

Machines and Unemployment

THOSE who depict the machine as a Frankenstein would do well to read the National Industrial Conference Board's new book "Machinery, Employment, and Purchasing Power." It is the conclusion of that study, amply supported by factual data, that instead of being responsible for major increases in unemployment, mechanization has created rather than destroyed opportunities for gainful employment.

Of particular interest is the section on "Machinery and New Industries."

Eighteen new manufacturing industries which came into existence since 1879, states the report, accounted for 18% of the total increase in employment and for 40% of the rise in the per capita employment in the manufacturing industries from 1879 to 1929—the period covering the rapid expansion of machinery in American industry. During 1929, these new industries employed 1,123,000 workers, or about one-eighth of all labor employed in the manufacturing industries in that year.

"These figures do not measure the total contribution of science, invention, and machinery to increased employment," it adds. "They cover only the field of manufacturing and then only some of the more important activities within that field. Neither do these figures indicate the number of new jobs created in such important fields of activity as public utilities and various transportation and distribution industries required for the marketing of goods and services produced by these newly created manufacturing industries."

One of the industries, incidentally, is the manufacture of rayon and other synthetic fibers.

■

Arbitration's Birthday

THOSE who, like Charles L. Bernheimer, have labored in the field of arbitration, have much to be proud of in the tenth anniversary celebration of the American Arbitration Association. The gains made in the reduction of the excessive burden of litigation have been astounding. The textile indstry has done a particularly fine job in this respect and it was quite in order that this industry should have been honored at the first of a series of luncheons in New York featuring the leading American industries which use arbitration.

Great as the gains in the past have been, however, they are negligible when compared with those in the cards for the future. We are confident it is only a question of time when practically all industrial disputes will be settled this way. All that is necessary for conversion of an industry, or a company, or an individual, to the idea, is exposure to it. It is one of the few things which really warrant the hackneyed advertising phrase, "Try it once and you'll always use it."

■

Nothing Left to Be Said

SECRETARY WALLACE'S statements can usually be shot full of holes but few have been riddled so badly as the inscrutable one in which he compared the amount of processing tax refunds to the industry's profits for certain selected years. The marksman was Dr. C. T. Murchison—and his ammunition was devastating logic.

After showing that the cotton mills of the country are not enjoying any appreciable "velvet" from the refunds, Dr. Murchison asks these pertinent and—to the Secretary—embarrassing questions:

"Why the proper disposition of the processing tax refunds in 1936 should have any relationship to the industry's profits in 1927 and 1929 is by no means clear. It would be no less logical, certainly, to compare the processing tax refunds to the industry's aggregate losses for the period 1929 to 1933, which amount to $155,000,000. The logic of the Secretary's reasoning would seem to be that since the industry made a small profit in the late 1920's it is not entitled to the return of processing tax moneys. Would the Secretary's reasoning be the same if the industry had made huge profits in the late 1920's? Would his reasoning also continue the same if the picture is narrowed to enormous losses which the industry suffered in the early 1930's? After all, is the question one of historical comparisons or is it more properly a matter of current justice in the light of the business conditions existing in the industry today?"

The less Mr. Wallace says in an attempt to answer these unanswerable questions, the better for his already uneviable reputation for wisdom of utterance.

One sometimes wonders whether the Secretary gets a certain sadistic pleasure out of "worrying" the textile industry. . . . There must be some reason.

The Editor Presents:

This Month

They May Be New:

But in a cursory survey we found over 70 different applications which have already been established for ball and roller bearings on textile machinery. Lubrication is the most important matter in the care of anti-friction bearings, and Allen F. Brewer, of Texas Co., tells—starting on page 93—just what should and should not be done in oiling and greasing such bearings.

Too Fat to Handle:

Of course when picker laps are allowed to become too soft and bulky to be handled easily they have got to be made tighter, but the tests reported on page 74 show that the bulkier they are the more likely that they are even.

Ringless to Streakless:

Eliminate the most important defect, and the second in rank becomes first. We have done away with consumer complaints on hosiery rings and now complaints on vertical streaks are on the increase. How to meet this situation is discussed on page 75 by a hosiery-mill superintendent who, incidentally, is a welcome new-comer to our columns.

Cracks and Wrinkles:

These faults are the main ones to be guarded against in processing rayon and acetate taffetas. A practical finisher outlines the methods which he follows in handling these fabrics. (Page 79).

Novelties in Carpets:

On pages 80 and 81 are shown a number of carpet weaves which will appear quite unfamiliar to American designers. Some are foreign; some are scarcely out of the experimental department. However, all typify present struggles to develop something novel.

Fancy Lenos:

They can be made in a considerable variety on one set of doups if care is taken in selecting a versatile drawing-in draft. Dr. Nelson explains this matter on page 82.

Now We Come to Voiles:

The third installment of Mr. Hoye's little encyclopedia on staple cotton fabrics appears on page 86. The series has scarcely begun, and scores of fabrics remain for treatment in future issues.

Strain Before Using:

This is only the first step in the application of spot-proofing agents and delustering compounds to hosiery. Samuel G. Newman, a new contributor to TEXTILE WORLD, offers some excellent advice to other dyers. (Page 87).

Who Was to Blame?

The dyer blamed the finisher. The finisher said the dveing was at fault. The super was at his wit's end. Finally a visitor discovered the cause of the shaded woolens, and a five-months' mystery was solved. (Page 91).

■

Next Month

Knitting Annual: April is our big knitting issue—including guide to the exhibits at Philadelphia, practical articles for operating executives in knitting mills, and economic high-lights. In addition, of course, we have all our regular features and departments for all branches of the industry.

It Has Never Stopped: Fifteen years ago the superintendent of a knit-goods finishing plant bought a Monel metal pail for the dy house. That started a modernization program which has never stopped. Today the man is president of the company; the plant is a model of efficiency. The changes which have taken place will be described in April.

For Summer Comfort: In April a knitting expert surveys the underwear-fabric constructions which will get the consumer through the next hot season with the least suffering.

The Latches Are Bent: Why? There are many possible causes, and a trouble-shooting article in the next issue offers the knitter an outline of them.

Hayes Will Be Back: With another of his practical woolen and worsted loomfixing articles in the April issue.

Fugitive Tints: Throwsters have long employed fugitive dyes for quick identification of various yarns. Now weavers and knitters are making increased use of them. The more wisely tints are used, the more valuable they are. Our color insert in April will be devoted to a comprehensive article on their selection, testing, and application.

Lot Chasing: How long have the goods been in the mill? How long in the dyehouse? How many men will be needed in the finishing department tomorrow? An article in our April issue outlines a simple lot-chasing system which permits these questions to be answered as quickly as you can say "Jack Robinson."

■

Last Month

"It Doesn't Make Sense"

"The editorial from the February TEXTILE WORLD, captioned 'It Doesn't Make Sense,' is to my way of thinking very much to the point. Its reaction on me is perfect. I don't think the subject could have been handled better. . . ."

"I think your editorial is a cracker-jack. It meets my sentiments exactly. . . ."

"The editorial in the February issue, commenting on the National Labor Relations Act, is very interesting to us. The points set forth in your editorial are concise and to the point, and we want to commend you in your efforts in that direction. . . ."

"I read, with special interest, editorial in your February issue making the argument that the operation of the National Labor Relations Act 'does not make sense.' My hearty agreement with every word that you say is based upon very definite, and recent, experiences. Like you, we feel that a law attempting to enforce such an injustice 'does not make sense,' and we commend the TEXTILE WORLD, and you as its editor, for your courage in coming out and saying so."

"A One-Man Crusade"

The editor said a mouthful in "A One-Man Crusade." I second the motion.

At the October meeting of Committee D-13—in 1934—at the Pennsylvania Hotel it fell to my lot to be toastmaster at the usual dinner. I spoke for three minutes and Miss Ethel Phelps for another three minutes. Then Mereness talked for 15 minutes and we adjourned.

HORACE J. JAQUITH.

The Overseers' Corner

STARTING with this issue of TEXTILE WORLD, we are concentrating in one section, and increasing in volume, our practical items for operating executives—all with the idea of making the material easier of access and broader in scope. We include in this section our previously labeled "Overseers' Corner" with an enlarged collection of kinks, pertinent correspondence with readers, questions and answers, personal news items, and reports of meetings where the discussion is of immediate application in aiding the man on the firing line.

All this material gets off to a flying start on page 101.

We invite readers to contribute freely to this department—and also to help us by frank suggestions, so that our facilities for spreading useful facts may be utilized to the utmost.

Government Purchases of Textiles Summarized

From Our Washington, D. C., Correspondent.

PURCHASES of textiles by the Government for relief purposes, at the latter part of February totalled 116,889,995 yards, for which $12,453,878 was paid. Principal purchases have been as

follows: Percales 13,315,000 yd.; outing flannel 9,100,000 yd.; cotton prints 9,000,000 yd.; chambray 8,433,000 yd.; bleached muslin 7,615,000 yd.; gingham 6,500,000 yd.; birdseye 6,455,000 yd.; unbleached sheeting 6,350,000 yd.; denim 6,300,000 yd.; bleached sheeting 5,450,000 yd.; unbleached muslin 5,400,000 yd.; broadcloth 3,500,000 yd.; terry toweling 3,300,000 yd.; huck toweling 3,050,000 yd.; cotton twill 3,000,000 yd.; lawn 2,000,000 yd.; cotton suiting 2,000,000 yd.; printed broadcloth 1,500,000 yd.; sateen 1,200,000 yd.; fancy chambray 1,000,000 yd.; whipcord 1,000,000 yd.; cottonade 750,000 yd.

The record of the purchases made is as follows:

Date of Award	Yardage	Approx. Total Value
Oct. 12, 1935..	21,302,300	$2,177,155
Oct. 29, 1935 ..	2,336,945	225,997
Nov. 2, 1935 ..	1,480,000	210,475
Nov. 18, 1935 .	5,630,000	553,496
Nov. 22, 1935 .	1,560,000	216,108
Dec. 5, 1935 ..	12,444,500	1,236,124
Dec. 18, 1935 .	2,527,500	453,056
Dec. 23, 1935 .	21,985,750	2,328,846
Jan. 16, 1936 .	6,753,750	610,987
Jan. 24, 1936 .	19,810,000	2,282,470
Feb. 12, 1936 .	14,057,250	1,468,758
Feb. 20, 1936 .	7,000,000	692,406
Mar. 4, 1936 ..	12,000,000	.....

Purchases during the remainder of the fiscal year will taper off somewhat. No program has been formulated as yet for the new fiscal year. Until that is done stocks will not be furnished the States in excess of their requirements between now and June 30. Since many of the States now have enough goods on hand to keep their sewing projects busy until June 30, no further purchases for those States will be made.

The new program cannot be formulated until the allocation of funds for the next fiscal year will have been made. At the time of this writing the President expects to be in a position early in March to estimate the amount of relief money he will need for the fiscal year beginning July 1. Plans cannot go forward until money is appropriated.

Sateen purchases are being used for slips, bloomers, underwear and linings. Lawn is going largely into infants' wear. Broadcloth is being used for pajamas, little suits and men's shirts. Chambray is being used almost entirely for men's work-shirts. The percales are going into dresses, while whipcord and cottonade are being used for trousers. Some skirts are being made of that material.

Some 200,000 persons are employed in 5,000 sewing rooms throughout the country. With the exception of a few large projects in cities, these rooms are in no sense factories. They are supplied simply with home equipment. In most instances the local communities furnish the rooms and pay the overhead.

This program is under the immediate direction of Mrs. Ellen S. Woodward, Assistant Works Progress Administrator in charge of women's activities. She, in turn, is assisted by a staff of home economists. Administration of the projects themselves is in the hands of State authorities.

Arbitration Marks Tenth Birthday

ARBITRATION is celebrating its tenth birthday—at least as represented by The American Arbitration Association. It is making its birthday an occasion for a new offensive toward reducing the excessive burden of litigation which has cost business so many millions of dollars. This effort was launched at the Decennial Dinner of the Association in New York last month at which representatives of many industries, including the major branches of the textile industry, responded to the roll-call.

Subsequently, the textile industry was selected as the first of a series of industries to be featured at luncheons arranged by the Association in acknowledgment of the use of arbitration on the part of those industries. The textile luncheon was also made the setting for a special tribute to Charles L. Bernheimer, for 25 years chairman of the arbitration committee of the Chamber of Commerce of the State of New York, and recognized as one of the outstanding pioneers of commercial arbitration.

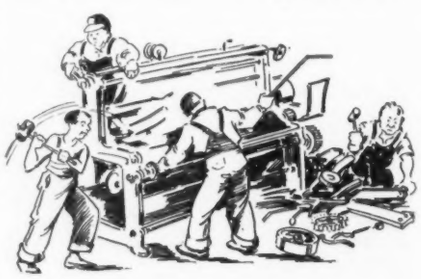
Among the cooperating organizations at the Bernheimer luncheon were: New York Board of Trade, Association of Cotton Textile Merchants of New York, Cotton-Textile Institute, Inc., Cotton Thread Institute, International Association of Garment Manufacturers, National Association of Finishers of Textile Fabrics, National Federation of Textiles, Inc., National Rayon Weavers Association, Textile Brokers Association, Textile Color Card Association of the U. S., Textile Converters Association of America, and Textile Fabrics Association. Among the representatives of the textile industry invited as honor guests at the luncheon were: C. Whitney Dall, W. P. Fickett, W. Ray Bell, Dr. Claudius T. Murchison, Joseph Pollock, Charles Pinnell, Alexander Barth, Henry Schniewind, Jr., Gottfried Conze, Howard Swiggett, Alexander D. Walker, and M. J. Warner.

British Spindles Bill Status

From Our Manchester, Eng., Correspondent

AT the time of writing the Cotton Spinning Industry Bill is passing through Parliament, and unless there is a sudden strengthening of the opposition it seems likely that it will be made into an act in the near future. In previous articles (TEXTILE WORLD, January and August, 1935) the writer dealt with the events which led up to the formulating of a bill to put into practice the Redundancy Scheme evolved by the Colwyn Committee. Since then there has been much argument about the scheme's merits.

The more extreme members of the opposition have argued that the scheme is merely a method of collecting debts drawn



up to assist the banks, which have so many of the weaker spinning concerns in their hands. Others have argued that there is nothing to show that any definite advantage will be gained by the spinners left in business after the carrying out of the scrapping scheme to compensate for the levy paid to buy up the redundant spindles. It has also been suggested that the Government should have first assisted the trade in getting price margin regu-

lating schemes into operation, similar to the scheme already in operation in the coarse spinning section of the trade, which means that all spinners are bound to make due allowance for plant depreciation and a minimum amount of profit for every lb. of yarn sold. This system has already worked out satisfactorily and put an end to the "weak selling" which had been demoralizing the trade. It is maintained by many, however, that the removal of the uneconomic spinning units throughout the country for a very modest levy per spindle will make for greater stability in the Lancashire cotton industry and enable the remaining firms to work more continuously and so reduce overhead charges.

The bill in its original form had a clause which prevented any spinner who happened to be in a fortunate position from extending his plant during the five-year operation of the act. This will be altered before the next reading of the bill, as it will tend to restrict the installation of new and up-to-date spinning machinery. It is maintained that the bill is not worth while if it does not provide a means for the cotton spinning trade gradually to re-build its spinning machinery on modern lines. The chances of re-building the cotton spinning trade with up-to-date equipment would be much better if the industry were working as a whole on a sound economic basis with all the redundant spindles cleared out of the way, and individual companies would find themselves in a better position for purchasing new machinery or for raising money to go ahead with a reconstruction policy.

The president of the Board of Trade, Walter Runciman, who introduced the bill into the House regards it as the beginning of a re-organization policy covering the whole cotton trade, and the spinning section is the most logical point at which to start this policy.

Foundation Sponsors Teaching Materials

THE Textile Foundation has announced that work has been started in carrying out the recommendations of committees of deans of the textile schools for preparation of teaching materials. These recommendations include (1) assembling, coordination and revision of teaching materials in the field of textile technology; and (2) preparation of materials for teaching a group of subjects in field of textile economics.

At the conference of the deans in October of last year, there was presented for consideration a preliminary sample of the subject material for teaching cotton carding. On the basis of this sample, which was prepared under the direction of a special committee of which Dean H. H. Willis of Clemson College was chairman, and which had been financed by the Foundation, the school heads voted to accept the report of their committee and to recommend that the Foundation finance the preparation of similar text materials in cotton textiles including opening and picking, spinning, weaving, cotton classification and grading. The committee also recommended the development and preparation of teaching materials in wool textiles including the subjects of sorting, carding and spinning.

At the same meeting, Dr. Alfred H. Williams, professor of industry of the Wharton School of Finance and Commerce, Philadelphia, presented the outlines of courses on textile economics. The deans of the schools expressed unanimously the wish that the Textile Foundation undertake the preparation of teaching material on textile economics, which could be adapted in expanding the curricula on this subject in the different schools.

Subsequently the Textile Texts Committee of the Foundation recommended the preparation of materials for four major courses: Textile Accounting, Textile Economics, Textile Marketing, and Textile Management. Dr. Williams, with five of his associates at the Wharton School, will undertake the preparation of these economic subjects. It is expected that two of them will have been developed sufficiently by next fall to be available for use then.

These proposals to prepare and distribute teaching materials should not be confused with the idea of preparing standardized courses. The Foundation and the heads of the schools recognize that the successful training of young men rests quite as much on the individuality and ability of the teachers in the several institutions as on the teaching materials. The teaching materials in both technical and economic subjects are being developed in cooperation with the industry and the schools and in loose-leaf form so that they may be adapted to the needs of the different schools, and used by them either as full texts or as texts supplementary to materials already available.

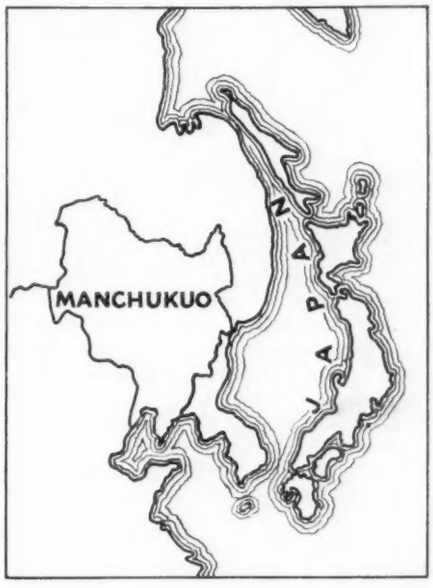
In sponsoring this educational program, the heads of the schools and the Foundation, in cooperation, are carrying out certain of the recommendations made in the earlier report prepared by the Textile Foundation, entitled "The Training of Men for the Textile Industry." The program is in charge of the deans of the textile schools, who constitute the general committee, of which Frederick M. Feiker, who prepared the report, is chairman.

The preparation of teaching materials on textile technology is in the hands of two sub-committees. The one covering cotton textiles, headed by H. H. Willis of Clemson College includes in its membership Henry W. Nichols of Bradford Durfee Textile School; William D. Fales of the Rhode Island School of Design, and C. A. Jones of the A. French Textile School of the Georgia School of Technology. The second committee deals with wool, and is made up of W. D. Fales of Providence, chairman, and Charles H. Eames of Lowell Textile Institute. These men together with Thomas Nelson of the Textile School of North Carolina State College of Agriculture and Engineering, E. W. Camp of Alabama Polytechnic Institute, J. B. Bagley of Texas Agricultural and Mechanical College, O. V. Adams of Texas School of Technology, Joseph H. Handford of New Bedford Textile School and E. W. France of the Philadelphia Textile School, make up the general committee.

Japan's New Cotton Resources

By Special Correspondence

JAPAN in step with the world-wide tendency of developing new natural resources in consequence of economic



nationalism, is now developing her new cotton resource in Manchuria. The Manchukuo Government itself is also developing its cotton resources to clothe, from within, the population of over 30,000,000, for which clothing she chiefly imports at present.

The Manchukuo Government organized in 1933 a Cotton Development Association, which now has branches in the cotton provinces helping local planters to get maximum crops. Almost at the same time, the Japan and Manchu Cotton Plantation Society was established, in which the Japanese Cotton Spinners Association, Japan Cotton Traders Association and South Manchurian Railway Co. are associated, assisted by the Department of Resource Development of the Japanese Government. The latter society is working in cooperation with the Manchukuo Gov-

ernment. Beside these organizations, there is another cotton plantation work undertaken in Korea.

In these Manchurian plantations, a 20-year plan is scheduled, aimed at producing 750,000,000 lb. of raw cotton extending the total plantation area to 1,200,000 acres in 20 years time. For the time being, the total plantation area of Manchukuo remains only less than 250,000 acres, and the present output is only about 30,000,000 to 40,000,000 lb. But Manchukuo herself needs at least 120,000,000 to 130,000,000 lb. of cotton to clothe her 30,000,000 population. Obviously, then, the time when Manchuria becomes an assured source of raw material for Japan's cotton industry will be in the distant future. But when one visualizes the actual increase of the plantation area and the vigorous effort achieved in the encouragement of enlarging the output in cooperation between the two countries, the future does not seem so dark. The following table shows the actual increase of plantation areas in the cotton provinces of Manchukuo, including the five big provinces; in the last five years:

1930.....	85,413 acres
1931.....	97,402 acres
1932.....	106,045 acres
1933.....	131,222 acres
1934.....	232,173 acres

It is estimated by an authority that Manchukuo will need at least 950,000 acres to produce the cotton she requires to clothe her population. If 20 to 30% improvement of yield can be expected, she needs 800,000 acres for Manchukuo herself. Japan has also had experience in cotton plantations in Korea, where she has encouraged cultivation since 1908. The acreage there is now developed to about 500,000 acres, and in 1933 Japan started in Korea a 20-year plan to extend the area to 120,000,000 acres to produce 600,000,000 lb. of cotton. Consequently looking 20 years ahead, Japan and Manchukuo may have new large resources of cotton in the Asiatic Continent and the world prices of cotton may again fall as a result of Japan's dispensing with foreign cottons. She is consuming about 13% of the world crop, being second to the United States at present.

Experts Call "Milk Wool" Cheesy

THE skepticism with which Charles H. Clark, secretary of the U. S. Institute for Textile Research, regarded the so-called synthetic wool produced in Italy from casein has an echo across the water. Experts associated with the Wool Industries Research Association at Leeds, England, after exhaustive tests of the new product, concluded that the meeting of the filament requirements of molecular structure that may be expected to reproduce all the properties of wool is not brought any nearer by this latest development. They agreed that it was extremely unlikely that "milk wool"—as the headline writers call it—could be made into compact and warm articles like blankets, as the Italians apparently believe.

"In general appearance," the report states, "the filamentous material is similar to that of merino wool, except that there is no crimp and the feel is harsher. Microscopic examination shows a fundamental difference however. The new filaments possess no scales such as are produced in wool fibers, which are responsible for the valuable property of controllable felting that is characteristic of natural wool."

Meanwhile, Wisconsin, as a leading dairy State, has an eye on "milk wool" as a partial answer to the problem of a surplus. Representative Boileau, of that State, has taken steps to endeavor to learn something of the cost of producing the reported fiber in Italy.

L. A. Hird Addresses Philadelphia Alumni

DECLARING that the successful man is the one who can adapt himself to change, Lewis E. Hird, of Samuel E. Hird & Sons, Inc., speaking at the 35th annual banquet of the Alumni Association of Philadelphia Textile School, urged his fellow alumni to add vision, enterprise, and courage, as well as raw materials and labor, to the products they are making. Bradley C. Algeo, president of the alumni association and assistant director of the school, presided at the banquet, which was held Feb. 28, in Philadelphia. After paying tribute to Professor Algeo for his lifelong devotion to the cause of higher education in textiles, Mr. Hird, the principal speaker, stated: "There is a common belief that the future of the textile industry lies in creating style obsolescence. I believe in the importance of style obsolescence as a contributing factor, but that it can be created or that this is the solution to all the problems of the industry is debatable, at least."

Continuing, Mr. Hird pointed out that in the case of women's wear, there is often a quick obsolescence, due largely to the influence of stylists. In the case of men's wear, change is slower and more orderly, and the fabric designer rather than the model usually leads the way. Today there is a tendency toward decoration and color, and the opportunity is at hand for the development of a powerful style factor and some style obsolescence in men's wear. Due to the mechanization of industry, the tempo of textile production has accelerated greatly, and employers and employees have both benefited. If progress is to continue, manufacturers must not only tax their present equipment to capacity, but must reach out beyond the limits of present machines and call for the development of still more machines.

Theodore B. Haywood, of the educational committee of Philadelphia Textile School, announced the appointment of Dr. A. J. Cameron, of Wharton School of the University of Pennsylvania, to the faculty as lecturer in accounting and cost finding.

Textile Features at British Fair

(*From Our London Correspondent*)

ONE of the most interesting features of the textiles display run in conjunction with the British Industries Fair at the White City, London, is the prominence given to Indian Cotton. The Lancashire Indian Cotton Committee has a most comprehensive exhibit, and many of the furnishing fabric manufacturers are now using the short staple cotton on an important scale.

The Courtaulds booth is featuring "Fibro" staple fiber for manifold purposes, and now this product is produced in 1 denier filaments as well as the usual 1.5 denier, and the new quality at 14d per lb. is 3d per lb. above the ordinary grade in all staple lengths. Chief interest is shown in summer suitings in which the staple fiber is left white and the worsted is dyed in the woven piece.

British Celanese has a vast range of fabrics of various styles, among which are heavy costume cloths made from "Celafil" rough surface acetate in the warp with a wool filling. Heavy denier acetate is used in the filling with a jute warp for cross-dyed upholstery fabrics.

A new series of assistants for textiles made from water-soluble ozonized oils is shown by a London firm, and these include sizes for rayon warps and crêpes, which can be removed in a few minutes. The same firm has a process for softening China ramie to make it suitable for replacing Italian hemp for rug-backing. It can be spun into counts of 40 to 50 lea, which is not normally practicable.

The Scottish woolen trade is well represented, and they are now going in for much lighter weights of tweed than formerly, in keeping with present-day trends.

There are several new processes for proofing raincoat fabrics, including a new porous rubberless finish applicable to gabardines and similar styles.

Textile Personalities

ROY A. CHENEY, managing director of the Underwear Institute, is a man of many rôles. To General Johnson and the NRA staff during 1933 and 1934 he was a persuasive spokesman for the knitted underwear industry. To the underwear manufacturers themselves he can best be described as a competent leader who does the right thing at the right time.

But Mr. Cheney has other rôles. For instance, he exemplifies the growing belief that lawyers make excellent material as trade association executives. He was admitted to the bar in 1912 and in 1934 was admitted to practice before the U. S. Supreme Court.

Then too he is an executive who knows the value of outdoor recreation. Maybe Yale was responsible for that; he graduated at New Haven in 1910 and ever since has been an ardent sportsman. Yachting is his favorite diversion and fishing runs a close second. It is to these outlets that he turns for renewed energy after exhausting tussles trying to find the answers to vexing trade questions.

And, as is evident in the accompanying photograph, in which he was caught off guard, he is quite comfortable at the helm.

THE route by which different men achieve executive positions in textile mills always interests us. In the case of A. E. Jury, agent of Winnsboro (S.C.) Mills of the U. S. Rubber Co., it was by way of a major concern with operating and technical developments in the cotton industry. A graduate of Lowell Textile Institute, he got his early training in such New England mills as Amoskeag, Cocheco (later Pacific), etc. He joined U. S. Rubber Co. in 1915 to head up textile research, organizing the Textile Section, which included a regular cotton manufacturing unit. The latter was of particular help to the company in its development work in the period of transition from the old square-woven to the cord type of tire.

Subsequently, Mr. Jury became assistant to the vice-president in charge of development, and a little later was placed in charge of the company's general research laboratories. In 1928 he became agent at Winnsboro. Among his technical activities has been participation in the work of Committee D-13 of the American Society for Testing Materials, of which he was chairman for four years.

Another major factor in Mr. Jury's work as agent is his close interest in personnel and safety work. Allied with this is his effort to beautify the mill village, and one of his tools—landscape architecture—is in turn related to his own personal interest in floriculture. In fact that ranks with a wide number of sports—such as hunting, fishing, swimming, boating, golf, etc—as a hobby.

AN amateur photographer without a single photograph of himself is what we call the height of modesty!—and that exactly describes C. E. Hatch, president of Brandon Corp., Greenville, S. C. So our inquiring reporter had to entice Mr. Hatch out of his office and snap the picture which you see on this page.

Mr. Hatch, seated in his big old-fashioned office with the desks of other executives scattered about the room, gives the impression of dynamic energy, though his manner is calm and deliberate. Clear thinking, plus vision and human understanding, have stood him good stead from the day when he entered the mill as a boy of fifteen through his rise to head of one of the industry's most important groups.

Born in Salem, Mass., Mr. Hatch migrated southward to Pelham (S.C.) Mills where he went to work in 1897. Brandon Corp. offered him a position in 1904, and, after serving in various capacities with this company for many years, he was made president several months ago, succeeding the late Aug. W. Smith who died in office. He is also a director of the Cotton Manufacturers Association of South Carolina. In addition to making extraordinarily good indoor and outdoor photographs (of everything but himself!), Mr. Hatch swings a pretty good golf club on occasions.

Windfall Tax

Likely to be approved —chances of other legislation

By Paul Wooton
Washington Correspondent, TEXTILE WORLD

◆ *It is difficult to forecast Congressional action at this stage. The prospects change from day to day—and opinions expressed in this article may not hold when this issue appears. However, it represents the best dope obtainable at time of going to press.*

ENACTMENT of the soil conservation act insures continuance of restraint on cotton production. It is expected that it will be administered in such a way as to prevent any material increase in cotton acreage. One of the most dangerous features of crop control is the fact that acreage reduction is based on an expectation of a normal year. It makes possible a subnormal crop if there are unforeseen developments, such as weather, that reduce yield. Southern farmers will doubtless prefer the bounty for retirement of land rather than gamble on a greater return by using all the land for cotton.

There is still great uncertainty, as this is written, as to the form taxation will take to raise the money needed for the agricultural program and for the other needs of the Treasury. It is safe to say that Congress will depart materially from suggestions made by the President. It would seem likely, however, that Congress will approve his proposal for a "windfall tax." This is expected to recover 50 or 60% of the amount of processing tax refunded. While the textile industry had less than $100,000,000 in impounded taxes, any tax based on those refunds will give rise to much trouble and uncertainty, due to the complicated character of the textile situation with its tax on floor stocks and with fully $40,000,000 covered by contract production.

One of the proposals made to the Ways and Means Committee has been that a part of the old processing tax be levied as an excise tax against the commodities covered by the old AAA act. If an excise tax of 1½c. were placed on cotton then it will be opposed by some members of Congress on the ground that the psychological effect on users will be just as bad as the tax at the old rate.

While there will be no loss of purchasing power in the farming regions under the new law, attention is called to the fact that demand for cotton textiles declines rapidly after a certain point of income is reached. When the requirements for the farm family for textiles are reasonably met, the tendency then is for excess income to go into automobiles and radios.

It is not going to be easy to fasten even part of the old processing taxes on the commodities previously covered. There are members of Congress who are ready to oppose the funneling of $60,000,000 a year or more from the processors of cotton and the penalizing of that product instead of spreading the charge over income as a whole.

Ellenbogen Bill: While it seems unlikely that the Ellenbogen bill, setting up a little NRA for the textile industry, or any similar measure, will get through Congress, it is just as apparent that Congress would approve a plan under which the industry would undertake to exercise its own controls. If the industry is to enjoy very many benefits of control it will be necessary to bring in the government. There is opposition to any tri-parte or bi-partisan board of control as experience has shown that they break up in component parts and are ineffective. On the other hand, Congress would look with favor upon a plan of regulation administered by an impartial tribunal such as the Interstate Commerce Commission.

At present, however, it would seem that with Congress unwilling to adopt the Ellenbogen plan or to allow industry the control it wants, prospects favor no action until a more acute situation develops.

Revised Walsh Bill: It is going to be hard to beat the revised Walsh bill, introduced by Representative Healey of Massachusetts, which would require the maintenance of predetermined standards by concerns selling to the Government. In the end, however, it is believed Congress will be unwilling to vote this measure. It will be influenced largely by the extensive machinery that would be required to be sure that the prescribed standards are being maintained and because it would mean that the government would have to pay much higher prices than for comparable goods in the open market. More than that, there is a feeling that this is a back-door approach to the problem of securing minimum wages and maximum hours. It also is recognized that it would not be popular for the Government to force citizens supplying its needs into burdensome requirements not met in supplying the ordinary needs of commerce.

O'Mahoney Bill: The O'Mahoney bill drafted by the American Federation of Labor, which would require the federal licensing of all corporations, has little chance of passage. If the conditions of license could be limited to wages and hours, a good many legislators might vote for the plan, but since it is certain that all manner of other conditions would be required before the license would be granted, a large majority is shying away from a measure of such far-reaching possibilities.

New Processing Taxes: AAA Administrator Chester Davis on Mar. 5 submitted to the House subcommittee on taxes a plan of the Department of Agriculture for processing taxes on 33 farm and allied products for two years. The proposals include taxes of 1.8c. per lb. on rayon, 3.8c. on silk and 1.5c. on cotton.

Government Purchases: Heavy purchases of textiles by the Government have had the effect, according to reports reaching Washington, of creating shortages in certain lines. This has not been thoroughly understood by retailers and has had the effect of arousing apprehension. This has resulted in heavier buying in other lines in which there is no shortage. Reports to the Commerce Department indicate that retail stocks are being increased at more than a seasonal rate, while the fear of inflation is prompting larger holdings in goods. Improving business has added to demand. This has been particularly true in the automobile industry, despite the fact that steel tops of automobiles have cost the textile industry no less than 20,000,000 yards of material.

Retroactive Tax

Economically unsound and financially immoral, states George Sloan

"Retroactive taxation . . . approaches perilously close to confiscation"

—George A. Sloan

RETROACTIVE taxation is economically unsound and financially immoral, stated George A. Sloan, of George A. Sloan & Co., when interviewed by a representative of TEXTILE WORLD. His long experience in handling this problem of taxation for the industry makes his opinion an authoritative one.

During the interview, Mr. Sloan outlined fully the background of the processing tax issue. He said:

"For several months prior to the Supreme Court's AAA decision a preponderant number of cotton mills had been selling goods to their customers under contracts which provided that should the law be declared unconstitutional the seller would refund unpaid processing taxes to the customer in respect of certain past deliveries and bill subsequent deliveries at the contract price less tax. With the exception of some scattered sales made on a net basis, the mills generally were obliged by force of circumstances to enter upon such contracts after the decision last July of the lower Federal Court which held the law to be unconstitutional. Following that decision the mills obtained injunctions against the payment of further taxes, but were required to pay the equivalent in escrow to their respective district courts.

"Because of the general impression throughout the trade created by the lower court's decision most of the industry's customers refused to buy except for immediate resale, fearing that if the decision should be sustained by the Supreme Court, they would find themselves with heavy inventories which would have to be marked down immediately to a price which could result only in ruinous losses. The processing tax so frequently referred to as a small tax of only a few cents was in effect a large sales tax. Consequently in order to continue doing business, pending a final decision by the Supreme Court, the mills in early August were obliged in the great majority of instances to sell the merchandise with an unqualified clause to the effect that should the law become invalidated the mill in question would refund to the buyer the amount of the tax provided the mill had been relieved from paying the tax to the Government or secured a refund from the Government. On the average such a clause covered goods bought 105 days prior to the Supreme Court's decision.

"What the customers anticipated has happened. Immediately after the Supreme Court's decision on Jan. 6, cotton goods in primary markets dropped in value by the approximate amount of the tax. Processors were thereupon faced with the contract obligation to make the required refunds or adjustments on contracts carrying these clauses. Similarly, the processor's customers are adjusting with their customers throughout the distributive channels, and it is these adjustments which make it possible for the retailer to pass on the price benefit to the consumer. This competitive situation has likewise forced down the price on tax-paid goods.

"The amount which the processors have paid, and are daily paying, to customers in respect of these adjustments, however, are only one part of the story. On the date of the Supreme Court's decision practically all processors had on hand heavy inventories of their own and stock in process of manufacture which immediately dropped in value by the amount of the tax whether tax-paid or unpaid.

"It must be remembered that the cotton textile industry conducts its business on the basis of long-term contracts which are entered into at a fixed price. Goods have been sold, and are now being sold, for delivery several months in the future at a price which takes no account of the tax. If retroactive taxes should now be levied, staggering losses would be incurred by the cotton mills with respect to these contracts as well as to contracts where delivery has been completed and refunds to customers have been made or, according to the terms of the original contract, are required to be made.

"It is estimated by the Cotton-Textile Institute that approximately $40,000,000 are now in the process of being paid in refunds to customers. In this situation, if legislation should be adopted which imposes a retroactive processing tax, the mills would be in the position of having to pay a double amount: first, to the customers, and second, to the Collector of Internal Revenue. There are not many mills in the industry that could stand such a strain, not to mention the losses in inventory as of Jan. 6.

"The essential fact is that retroactive taxation is economically unsound and financially immoral. What business man can in the future predict his costs, establish sales prices or make contracts with his customers, if he is to find that a tax may later be imposed retroactively that will not alone wipe out his profits, but may also imperil the very solvency of his business? To impose now a retroactive tax on the processors who have no way of adjusting their past prices to their customers would be unconscionable. Retroactive taxation or any other form of taxation having this effect, under such circumstances, approaches perilously close to confiscation. It is my belief that if this issue is raised formally it will be vigorously opposed by responsible governmental officials, by the members of the industry and by the public."

Fashions for Fall

By Emma Lou Fetta

◆ *Predicting the trend of the stock exchange, or the price of cotton, or the outcome of a prize fight, or even the weather, is child's play compared with forecasting fashions of the future. Miss Fetta is courageous however—and has taken a chance on next fall. Her equipment for the task is long and prominent association with the fashion field; her background for this particular article—in which she attempts to interpret coming fashions in terms of silk, rayon and wool fabric trends—is a series of flash contacts with authorities in all the trades which contribute to the style picture.*

IN ATTEMPTING to sketch this far in advance the fall 1936 fashion picture, we can at least be sure of the words good instead of flagrantly glamorous—quality instead of effect-at-a-price—loveliness instead of gaudy dramatics. The fall and winter seasons has seen the country emerging from "depression repressions." A new zest for spending has been in evidence. Luxurious fabrics sold so rapidly that to be gorgeously golden in the evening quickly became the ambition of every shop girl as well as every woman of wealth. The reaction is bound to set in.

There is every indication that that reaction will be a logical one: more simplicity, and strengthened standards of quality for better volume sales. By next fall the allurement of spending money again will be more definitely tinctured with common sense.

So much for generalities; now for specific trends.

Silks and Rayons: Emphasis is to be on plain velvet —with here and there discreet introduction of metallic or Cellophane threads or motifs. "Moss" twist velvets will be important. Low luster will be featured. The crush resistant development will play a big part. Both silk and rayon (transparent) velvet families will seek superior construction. Chiffon velvet low-luster and drapable, will exceed Lyons in importance.

The silk people have greatest faith in the passing of emphasis on stiff fabrics; drapability with weight is their ambition. Matelasse has apparently run its gamut. Interest wanes in clochy fabrics for fall, and is strengthening in the real Canton crêpe type. Pebbly surfaces will only look that way; they will be smooth to the hand. Silk jersey bears watching. Metallics, when they appear, will be for either the very rich or the basement bargain hunters. Satins, in the daytime, it seems, will give first place to dull-luster, weighty, pliable crêpes. Paris has stressed satin, chiffon, crepe, net and lace for evening. Taffeta is a gamble; it may become strong because of one or two Paris designers. Emphasis on embroidery seems safe.

Will be good, not glamorous—lovely, not gaudy

As to colors, belief is strong in the fall importance of this spring's grays and beiges in deeper tone; they will perceptibly replace black and very dark browns. On the other hand, warm fall browns—so dead for 18 months—are expected to return in shades ranging from rust to nasturtium. Black will come into the picture as usual but probably in a new ratio of importance. Customarily, silk houses of late years have counted black safe for 80% of their business; for next fall, they are thinking in terms of 55% black and 45% colors.

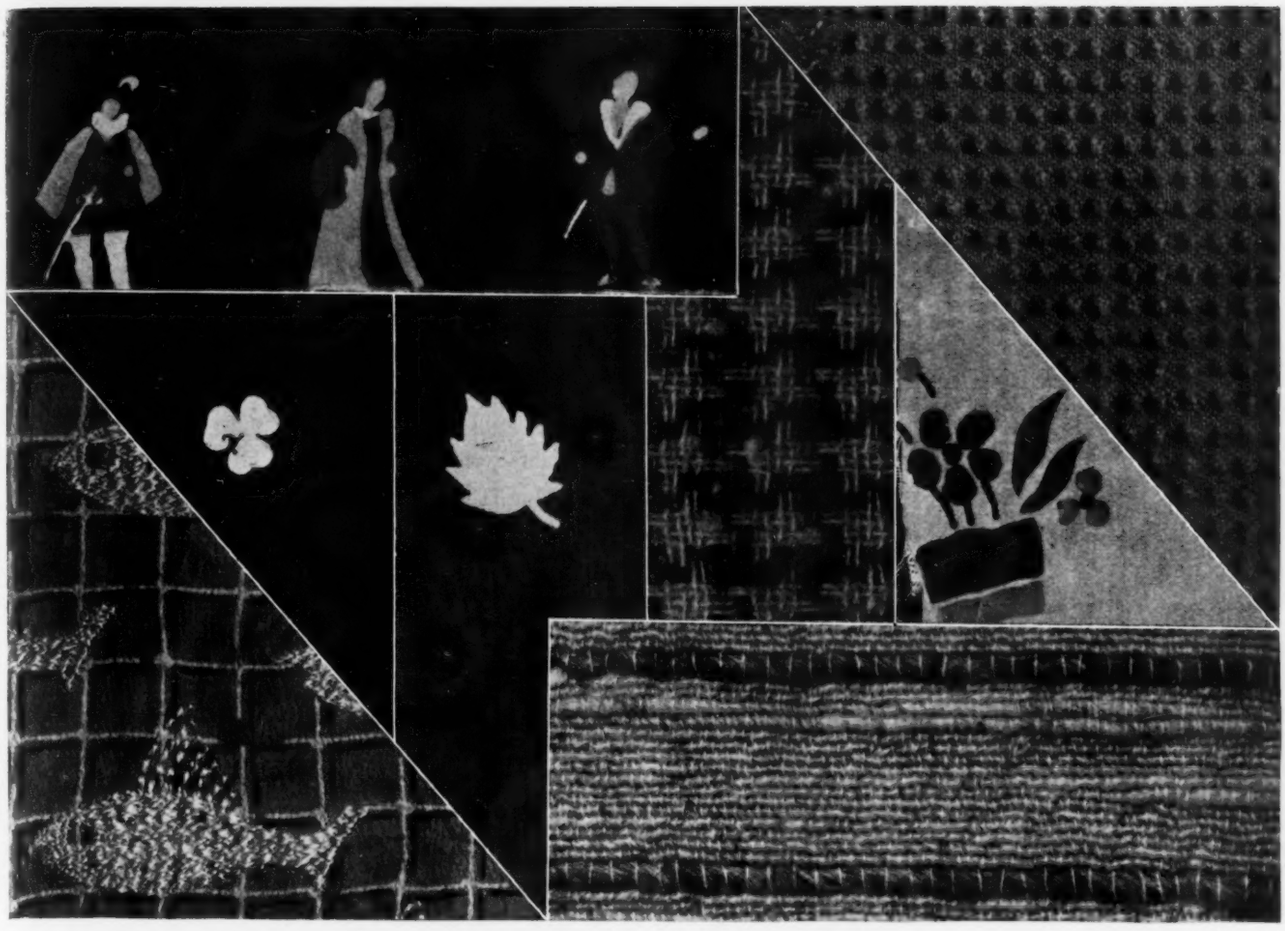
Woolens and Worsteds: Keen observers see the great interest in utilitarian and interesting tweeds continuing strongly in the autumn. One observer asks: "Why not smooth tweeds if we must go smooth in the autumn?" She insists that the American woman will not go back to lint-collecting broadcloths and duveteens; however, her particular clientele comprises socially prominent women and extremely successful business women. There are others who do not concern themselves so greatly with the appropriateness of their wardrobes as with their at least alleged smartness; they can probably be sold suede cloths of the most dust-gathering type if such fabrics are strongly promoted.

Nevertheless, there is a growing market for the tweed family both in and out of the big cities. While it will probably be smarter to have a smooth surfaced fabric in the fall, the right tweeds will sell strongly. However, it appears that gabardine has been a flash in the pan.

For cocktail suits, and dinner "tailor-made" clothes, the paper-thin broadcloth type will find a market. Wool jersey looks favorable. Sheer fabrics will constitute a very big market; Americans are becoming conscious of the "cool wool" promotion. It is safe to predict that "indoor woolens" will concentrate less on surface interest and will be relatively sheer; outdoor fabrics can have all the surface interest possible, must look weighty, be warm, but not be bulky or heavy to wear.

What the Cellophane interests or the metallic thread people may do in promotion before fall is not yet predictable, but glistening woolens are not widely foreseen.

Summing up, the general fashion picture in the wool field is a prediction of fewer rough nubby fabrics; fewer harsh textures; more technically efficient softness of hand and smoothness of surface; perhaps even smooth tweeds. Dressy wool fabrics for fall must be drapable. They as well as silks are likely to be ornamented rather than ornamental. They will have intrinsic quality rather than showiness. Unless the applecart is very much upset stylistically or economically, they will be what this country means by "good"—and volume business in good woolens will follow the leaders' lead.



Realistic Figures

By Betty Hirschberg
Paris, France

To the fore in current French fabric offerings

THE French mode is displaying a fondness for little figures which run the gamut from geometric to human. Chanel showed silk taffetas which were printed and embroidered with iridescent fishes. Schiaparelli, who a year ago brought out that remarkable fabric printed like a newspaper, now uses small, wild horses in various leaping attitudes that produce a strange exciting picture, and "musical fabrics" using notes, portions of musical scores, openings of songs and signatures of the composers. Carlin's new summer materials show dancing female figures in classical garments and poses in gray or white on a dark ground. In Castelain's Tyrolian materials Alpine peasant couples sway in a slow waltz or polka and give a vivid, gay-colored effect to wool mousseline. Figures as patterns for fabrics are in general popular among the summer novelties. A black crepe-de-chine shows groups of three or four minute figures in costumes of the Middle Ages, knights with plumed bonnets and swords, noble dames and damsels in flowing gay-colored gowns.

Another device which makes progress this season is the use of patterns in relief obtained by chenille stripes, cellophane yarn outlines, large nubs, thick wool knots, little bits of leather and minute pompoms. There is no limit to the fancifulness of the patterns; for example, the fine woolen material by Castelain, the surface design of which, as the maker explains, is patterned on gooseflesh! Even simple crowsfoot designs are embellished with nub and relief effects. Chatillon Mouly Roussel creates a hand-woven cape material of Berber wool with thick contrasting stripes which reminds one of an upholstery fabric. The importance of wool-like finish is high.

Paint and varnish colors, which up to now were used only for wooden furniture, are the latest aids for printed fabrics. Carlin gives to a dull taffeta lustrous varnish dots in the form of aces of diamonds. A silk mousseline, with all-over moiré print, has painted on it leaf-shaped motifs of white and black varnish colors. Castelain shows on white taffeta an amusing varnish color design of small flower pots and flower vases in many gay colors. The printed areas are thick and stiff, much as if thin sealing-wax had been applied to the fabric.

In the field of color Chanel offers pairs of fabrics (wool for the cape, silk for the gown) under the name "Dupia" fabrics, which give complete harmony. Wealth of colors in the new mode is stressed in a Carlin flowered silk fabric. Here, within the printed design repeated at note too large intervals, are 21 different colors!

Upper left: Knights and ladies printed on fine navy crepe. Lower right: Hand woven "Barber" wool (Chatillon Mouly Roussel). Across center, left to right: Embroidered fish on green ground (Chanel), leather shamrock stitched to crepe, heavy painted leaves on thin veiling (Carlin), fancy crow's foot woolen (Castelain), stiff painted print on taffeta, "goose flesh" nub (Castelain)

N. A. W. M. checks off its

Seventy-first Birthday

THE 71st annual meeting of the National Association of Wool Manufacturers held Feb. 19 in the West Ball Room of Hotel Commodore, New York, was as usual a closed session. Officers were reelected for the ensuing year and the promotional campaign now in operation heartily supported.

Arthur Besse, president of the association, was confined to his home due to a knee injury suffered while skiing, and Franklin W. Hobbs, vice-president presided in Mr. Besse's absence. Mr. Hobbs praised Mr. Besse's achievements as head of the association in recent years both during NRA and in the post-NRA period. It was announced that dues would be substantially reduced since the voiding of NRA permitted the N.A.W.M. to curb many of its activities.

A display of the work of Associated Wool Industries attracted favorable attention and the resolution to support it in its work of wool promotion was carried unanimously. It was the sense of the meeting that the work should be financially encouraged by the membership and its extension urged. The opportunity of "selling" itself to its industry was most helpful to the promotional body as this was the first annual meeting of the parent association since the complete organization of Associated Wool Industries.

Arthur A. Ballantine, counsel to the association, spoke on the legislative situation and urged members to be watchful over their interests and active in opposing legislation injurious to trade and employment. He touched on the Wagner Bill, the Ellenbogen Bill, the Walsh Bill and the S.E.C. Act.

At the election Arthur Besse was renamed president; Franklin W. Hobbs, Arthur S. Harding, John L. Hutcheson, Jr., vice-presidents; Walter Humphreys, secretary and treasurer.

Other results of the election follow:

Directors from groups, Lewis A. Hird, E. Dean Walen, E. W. McGowan, H. M. Ashby, Addison L. Green, Millard D. Brown, John H. Halford, L. F. Schaeffer, John Cavedon, H. T. G. Dyson, Frank D. Levering, Rowe B. Metcalf, Albert C. Bowman, Arthur C. Wellman.

Directors-at-large: Edward Andreae, Louis Bachmann, C. M. Bishop, Thomas T. Clark, George A. Dorr, F. C. Dumaine, Jr., Curt E. Forstmann, William L. Hayward, Charles F. H. Johnson, Everett L. Kent, Stanley H. Lawton, Austin T. Levy, A. S. Neilson, William B. MacColl, Allen R. Mitchell, Jr., William S. Nutter, Moses Pendleton, Abbot Stevens, Ames Stevens, D. D. Sutphen, Frederic W. Tipper.

Business conduct committee: Arthur Besse, Millard D. Brown, Ronald W. Cordingley, Everett L. Kent, Ames Stevens, Frederic W. Tipper. Alternates: H. M. Ashby, Eugene Bonte, Marland C. Hobbs.

Group committees were also elected covering worsted men's wear; worsted women's wear; carded men's wear; carded women's wear; blankets; cotton warps; knit fabrics; sales yarn; combers; scourers and carbonizers; piece goods selling; reworked wool; topmakers.

Ten Years of Cotton Textiles

Data assembled by the Association of Cotton Textile Merchants of New York from Bureau of the Census reports and information obtained through courtesy of machinery manufacturers. Cloth production for non-census or even years and for 1935 has been estimated to correspond to spindle-hour activity during preceding census years. 1936 starts with 29,253,444 spindles in place, a decline of 1,636,040 or 5½% from 1935 to a new low point.

	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935
EQUIPMENT										
Spindles in place at beginning of year	37,871,936	37,364,730	36,465,976	35,267,086	34,541,486	33,608,494	32,326,526	31,442,174	30,938,340	30,889,484
Decrease from preceding year	67,836	507,206	898,754	1,198,890	725,600	932,992	1,281,968	834,352	503,834	48,856
New installation, additions and replacements	217,264	496,192	255,912	320,784	251,936	205,068	143,908	348,568	529,840	214,874
OPERATION										
Spindles active at any time during year ending July 31	34,750,266	34,409,910	33,569,792	32,417,036	31,245,078	28,979,646	27,271,938	26,894,860	27,742,462	26,700,946
Spindles idle during same period	3,121,670	2,954,820	2,869,184	2,850,050	3,296,408	4,628,848	5,054,588	4,547,314	3,195,878	4,188,538
Average number active spindles based on 12 monthly reports	32,352,262	32,547,119	29,961,648	30,408,548	27,269,470	25,674,107	23,250,757	24,873,270	25,119,435	23,421,150
Intermittent spindles *(being the difference between average active spindles and those active at some time during year)*	2,398,004	1,862,791	3,608,144	2,008,488	3,975,608	3,305,539	4,021,181	2,021,590	2,623,027	3,279,796
Percentage relation of average active spindles to spindles in place	85.43%	87.11%	82.16%	86.22%	78.95%	76.39%	71.92%	79.11%	81.19%	75.82%
Spindle hours run	97,028,629,898	104,450,215,778	92,728,880,678	99,899,724,476	76,702,655,168	77,793,298,853	70,218,347,911	86,580,232,828	75,711,412,882	76,017,361,934
Hours run per average active spindle	2,999	3,209	3,095	3,285	2,813	3,030	3,020	3,481	3,014	3,246
MARKET										
Production in square yards	7,936,942,000	8,980,415,000	7,972,551,000	8,541,546,000	6,558,154,000	7,141,904,000	6,446,466,000	8,088,846,000	7,072,960,000	7,101,542,000
Exports in square yards	513,299,000	565,021,000	546,847,000	564,444,000	416,285,000	366,959,000	375,446,000	302,042,000	226,306,000	186,565,000
Imports in square yards	60,680,000	63,002,000	61,295,000	61,185,000	35,517,000	34,732,000	29,436,000	41,348,000	41,533,000	63,674,000
Available for domestic consumption	7,484,323,000	8,478,396,000	7,486,999,000	8,038,287,000	6,177,386,000	6,809,677,000	6,100,456,000	7,828,152,000	6,888,187,000	6,978,651,000
Population at July 1	116,483,000	118,197,000	119,798,000	121,526,000	123,091,000	124,113,000	124,974,000	125,770,000	126,626,000	127,521,000
Available for per capita consumption in square yards	64.25	71.73	62.50	66.14	50.19	54.87	48.81	62.24	54.40	54.73

Speakers Table at Outerwear Banquet

The Sale's the Thing!

Merchandising leads many topics at outerwear convention

RAPID-FIRE action was the chief characteristic of the 18th annual convention of the National Knitted Outerwear Association which drew most of the leading outerwear manufacturers to the Hotel Astor, New York, last month. Within the narrow compass of one evening session, on Feb. 26, and two daytime sessions, on Feb. 27, the convention crowded a surprising quantity of important business.

The convention's trend showed the industry to be following very closely the four-point program outlined last summer by the National Association. This program covered: (a) promotion; (b) trade practices; (c) standardization of depreciation; and (d) standardization of sizes. Action was taken by the convention on all four questions.

Outstanding in general interest was the decision of the body to approve in principle a three-year, nation-wide promotional campaign, to cost about $50,000 each year, the funds to be raised by subscription based on each manufacturer's sales. By authority of the convention, Ingraham Bergman, president of the association, will appoint a committee to secure subscriptions. When the necessary funds have been pledged the committee will report back, and the association then will form the permanent campaign organization.

It was emphasized that all details regarding the drive are wholly tentative. However, the convention was clearly agreed on the need for such a campaign. Harold A. Lhowe, managing director of the association, and other speakers, emphasized the benefits to be derived from the promotion. It was stressed that the industry's merchandise today is of higher quality and far more popular than it was when the last nation-wide outerwear campaign was held some 14 years ago. Subscriptions will be solicited both from the 400 members of the association and from the industry at large. One basis of subscription being considered is the contribution of one-tenth of 1% of annual sales volume. The drive will aim to make women knitwear conscious; it will be conducted by a body to be appointed by the president of the association, but will operate independent of that organization.

One pressing problem with regard to trade practices was the market weakness in retailing of men's and boys' knitwear. The association group representing this division met on Feb. 26 and voted to reaffirm their adherence to the 3-10-E.O.M. selling terms, and took a strong stand against the practice of some firms to give special concessions. Various convention speakers praised the industry for maintaining high selling standards after the collapse of the N.R.A.; it was pointed out by Sidney S. Korzenik, secretary of the association, that the industry's post-N.R.A. trade code, although technically a failure, had proved valuable as a "shock-absorber" in the difficult transition period.

The question of depreciation standards was considered in a report read by Mr. Korzenik. This report told of the association's work in developing its cost accounting plan. It was pointed out that at present the Federal income tax allows only 5% for depreciation of machinery. The industry is divided on the question of asking for higher depreciation allowance because of the prospect that the government may impose higher taxes soon, when the application might be more vital. The report concluded with a recommendation that the association's cost accounting manual be condensed to six or seven rules, and that the depreciation study be continued.

The report of the standardization committee told of progress being made toward developing standard sizes in swim trunks; that is viewed as especially important this year because of the further trend toward "trunks only," among men bathers.

One standardization topic which evoked much discussion was the method of billing yarns on moisture regain as developed under the N.R.A. The standardization committee reported that it had carefully studied the present method, and had held various joint sessions with the commission yarn dyers and wool yarn jobbers; the spinners were invited, but did not attend, it was stated. The association committee condemned certain phases of the system and urged radical changes. The convention heard strong defense and equally strong criticism of the report and then voted for reconsideration of the matter.

It was apparent, among the variety of matters considered, that the merchandising thought dominated the convention. Both in the addresses and in informal lobby conversation, distribution of product was a live topic. Ingraham Bergman, president, voiced the general mood when he referred in his opening address to the challenge which the industry faces due to the encroachment of the products of other industries. Mr. Bergman added, however, that the creative ingenuity of the outerwear manufacturers, through new materials produced with new devices developed to vary fabrics, would prove equal to the emergency. He concluded by emphasizing the importance of continued unity within the association: "We know that any division or decentralization when the N.R.A. collapsed would have created confusion. So we must continue to function as one unit, one association."

The increasing competitive pressure of Japanese imports lent significance to the tariff committee's report which was submitted by John J. Phoenix, president, Bradley Knitting Mills, through I. B. Davies, secretary of that company. Outerwear imports from Japan have risen nearly 400% in 1935, the report stated, urging continued vigilance by the association on all legislation which might lessen the industry's protection. The convention concluded with the association's annual dinner, at which nearly 850 were present. Of that gala event suffice it to say that "a good time was had by all."

BULKIER PICKER LAPS . .

Firm cotton laps easier to handle but bulky ones are evener

By Richard White

IT MAY seem like a long call from picking to spinning, but it is an easily established fact that unevenness in the lap can, and does, result in uneven yarn. The idea has always been prevalent that a "good firm lap" is a decided asset, but research will show that it may be advantageous to forego a certain amount of this desirable firmness in favor of the more pertinent quality of evenness.

A yard-for-yard analysis throughout the entire length of the lap often proves to be a most revealing experiment and is well worth the effort involved. Any such test should, of course, be made with extreme care; this is particularly true, however, of a lap test, where a bit of carelessness can easily alter the entire complexion of the results. The full lap should be laid on the floor and unrolled its entire length, every effort being made not to stretch or damage the lap in the process. A steel tape should be used to measure the actual length. The lap is then torn off in 1-yd. segments, and the segments weighed in order. Table 1 shows the results that may be expected from a normally operated picker. In this case, the knock-off mechanism was set to give a lap of exactly 44 yd. in length and a standard weight of 42.5 lb.

A study of the figures discloses several interesting points: (1) Yard No. 1 (*i.e.*, the first to be unrolled from the lap) is the lightest; (2) yard No. 45 is the heaviest; (3) the total length measured by the steel tape is 2.9 yd. greater than that for which the picker was set; (4) the total number of yards torn off and weighed does not coincide with the yardage secured by means of the steel tape.

In seeking a plausible explanation of the first two items, we must consider three factors: The first is the tension draft which exists between the calender rolls and the lap-carrying rolls; the second is the accumulation of stock on the picker screens while the picker is stopped during doffing; and the third is the expansion of the lap which takes place when the pressure of the rack is released. The tension draft will probably be found to be about 1.06. When the picker is first started after doffing, a length of lap must necessarily be produced upon which this tension-draft does not have an opportunity to operate. This is due to the fact that the operative must wait for the lap to come through before he drops the lap bar and starts lap winding around it. Also, there is a certain lapse of time before the rack can be completely lowered and commence exerting its pressure upon the bar. During this interval the tension draft is ineffective; and this fact, together with the probability that there is an extra accumulation of stock on the screens, will explain the excessive weight of the first yard produced (No. 45 in the table).

The light end of the lap (yard No. 1) may be explained by the factor of lap expansion. The lap having been produced under conditions of pressure, there will be a very natural and observable expansion when this pressure is released. In other words, there will be an appreciable increase in the diameter of the lap when the rack is raised, and this will, of course, be accompanied by an increase in its circumference. Since there is only a certain length produced by the picker to form the outside layer, and since it is unreasonable to believe that the various layers slip by each other when the expansion takes place, it follows that the original length wrapped about the outside of the lap must be stretched to conform to the new circumference. This means that the outside layer will exhibit a deficiency in its weight per yard.

The fact that the actual yardage of the lap is greater than that for which the knock-off motion is set may also be explained by the expansion theory. In fact, this is the surest method of proving that there is expansion.

The fourth point brought out by Table 1 serves to emphasize the fact that the common method of obtaining yard-for-yard weighings of laps (*i.e.*, by means of the familiar wooden form) is certain to be inaccurate.

Weight correction to compensate for heaviness and lightness of the first and last yards produced, respectively, might be made through some more-or-less intricate control of the evener motion; but this would not preclude the variation of the yardage from standard. Since it is the pressure on the lap during its production which is responsible for these irregularities, it appears logical that investigation should start at this point.

An inspection of the rack mechanism will show that its release is governed by a leather-covered foot pedal pressing upon a smooth-faced steel pulley. The friction at this point is governed by an adjustable weight resting on a lever arm, and it can be decreased by moving the weight nearer to the fulcrum point—or, if the weight is already in its foremost position, by substituting a lighter weight. Of course this action will produce a bulkier lap, but it will be more even. The point at which to stop decreasing the pressure is when the lap becomes so bulky that it is difficult to handle.

The figures in Table 2 are submitted as an example of what occurs when this procedure is carried out. The lap from which these figures were derived was made on the same picker that was used to develop Table 1.

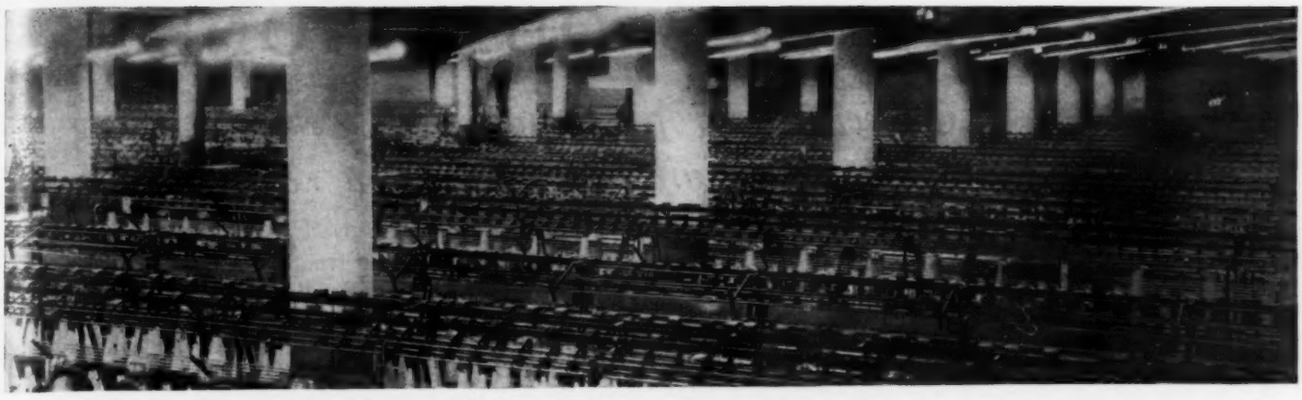
TABLE 1

Yard No.	Weight Oz.	Yard No.	Weight Oz.	Yard No.	Weight Oz.
5 in. waste	1.88	16	14.75	32	15.00
1	14.12	17	15.13	33	15.13
2	15.00	18	15.50	34	14.75
3	14.88	19	15.00	35	14.88
4	14.88	20	15.13	36	14.88
5	14.88	21	15.37	37	15.25
6	15.00	22	15.00	38	14.88
7	14.63	23	15.00	39	14.88
8	15.25	24	14.88	40	15.12
9	15.00	25	15.37	41	14.50
10	14.88	26	14.75	42	14.88
11	15.25	27	15.13	43	14.88
12	15.12	28	15.12	44	15.25
13	14.88	29	14.88	45	16.13
14	15.00	30	15.00	8 in. waste	4.25
15	14.88	31	14.63		

Actual length measured by steel tape	46.9 yd.
Total number of yards weighed	45.36
Total weight of lap by individual yards	42.6 lb.
Average weight per yard	14.99 oz.

TABLE 2

Total length measured by steel tape	44.33 yd.
Weights of first three yards	15.75; 15.12; 15.25 oz.
Weights of last three yards	16.00; 15.75; 15.50 oz.
Average weight per yard of entire lap	15.49 oz.



NOW HOSIERY STREAKS

Three-carrier removal of rings makes vertical lines current source of complaint

By A. J. Cobert

◆ *Mr. Cobert believes that a careful filing of the jacks "will do more to eliminate streaks than any other one thing," and in this article he describes a suitable procedure for aligning them in a vise and detecting their irregularities. He also suggests methods for putting other streak-causing parts of the full-fashioned machine in good condition.*

WITH the advent of the ringless or three-carrier method of knitting, a marked increase in the demand for clearer, streakless hosiery has become evident. After the elimination of most of the horizontal rings or stripes by this new system, it seems as though the vertical lines, caused by worn parts in knitting machinery, have become more apparent. At least the consumer is more conscious of their presence.

Granted that proper adjustment of the various parts is most essential to the production of a good fabric, nevertheless each individual part directly responsible for the size of the stitch must be in good condition. These may be listed in the following order:

1. Jacks.
2. Verge plates.
3. Sinkers and dividers.
4. Needles.
5. Regulator cam and roller.

It is easily understood that the renewal of any of these without the remainder will not produce results, but, on the other hand, will accentuate the difficulty. Replacing of all parts is costly. Therefore a satisfactory and economical compromise is desirable.

First, new sinkers are essential. The old dividers, however, may be used, unless they are badly pitted. It has been found in the majority of cases that old dividers work better with new sinkers, since the sinker tricks are worn more than the others and when the heads are tightened down the worn dividers will be as free as the new sinkers. Taking a few thousandths off of the separator blocks will be found sufficient to bring the grooves close enough to eliminate excessive up-and-down play in the sinker heads. This can best be accomplished by laying a piece of emery cloth flat on the bench and rubbing the blocks several times over it. Several trials will give the mechanic sufficient experience to know how much to remove. This procedure is better than re-cutting the sinker heads, as oftentimes re-cutting will tend to throw the presser edge out of position—a serious matter.

Milling or shaping of the verge plates is usually satisfactory, unless they have once been re-cut, in which case it is advisable to replace them.

The jacks can be worked over and thus made more satisfactory than new ones. Make two straightedges from steel, a little longer than the heads and approximately $\frac{1}{2}$ by $1\frac{1}{2}$ in. thick. Clamp one of these to the back of the head on a line with where the slurcock wears the jacks, with the narrow side of the straightedge against this place, holding all the jacks in a forward position. Place enough shims at the ends of the head to permit just a little play in the jacks. This is important.

Now place the jack head in a vise in such a manner as to permit the weight of the jacks to lie against the straightedge. In this position, merely rubbing the other straightedge, which has been previously coated lightly with Prussian Blue, across the striking edge of the jacks will make all the unevenness apparent. Care must be exercised in filing this edge to insure the proper contour of the jack.

This operation will do more to eliminate streaks than any other single thing. Needless to say, before an attempt is made to file the jack heads, they must be perfectly clean and free from oil. In the future, if new jacks are to be installed to replace bent ones, it is advisable to repeat this operation on the particular head concerned. This entails some extra work but will keep the jacks uniform and the fabric streakless. Even slightly used machines will show a variation when new jacks are inserted.

Re-needling the entire machine has decided advantages, although it is not absolutely necessary. The old needles may be realigned and spaced and the remaining bad ones removed after the fabric has been started on the rebuilt machine.

The regulator cam and roller should be replaced to insure a uniform stitch across the entire section.

Lastly, adjustment of all vital parts of the machine is important to the production of good work. Increased production and quality merchandise, resulting from this overhauling, will more than offset the necessary cost and will put the machine on a better competitive basis in this day of ringless, streakless, shadowless hosiery.

A LOOMFIXER'S QUESTIONS

Concerning drop threads, floats, skips, cutting of shuttles, lining up looms, and reducing seconds

By Ivar Moberg

THE southern loomfixer who had trouble at transfer of bobbins in Draper looms and whose inquiry on the subject, together with my reply, was published in the December issue of TEXTILE WORLD, again writes—as follows:

"Your answers to those questions I sent you recently worked fine and I would appreciate some more.

"1. What causes drop threads, floats, and skips on an E-model Draper loom running on cotton goods, plain work?

"2. What is the first thing you would do when going on a run-down job?

"3. What would be the proper way to line up a loom which is cutting the shuttle on bottom and top?

"4. My seconds are running around 3%. I have new sand roller, rocker shaft, camshaft, and crankshaft; and what could I do to bring the seconds down lower?"

Excessive "Felting"

In reply to the first question, I should say that there are several causes of the defects mentioned. The most frequent is excessive "felting" of the loom. This means that the raising of the whip roll, warp stop motion, and take-up roll in order to get a good cover on the cloth has been overdone. If we have two or more ends drawn in the same dent in the reed, we must set the loom for "felting," which means the production of a good cover and freedom from reediness in the cloth. However, we must not overdo this, or we shall make the top shed so slack that the loom will have a tendency to make overshots, or skips. We must also see that we have a clear, open shed, which is so timed that the shuttle will be given the "right of way" through the shed. The timing of the shed will, of course, depend upon the number of degrees rest of the harness cams. As a start, we can time the shed-forming so that the harnesses are even when the lay is half way between the bottom and front centers. From this preliminary timing we can advance or defer the forming of the shed, as the case may be.

Timing the Pick

The timing of the pick is also very important to avoid skips; and, although I do not know the width and the speed of the looms in question, I suggest that the timing of the pick be such that the shuttle starts to move when the lay is at top center or 10 to 15° beyond. Unless we use a protractor, it is rather difficult to determine the number of degrees beyond the top center at which the pick should start. This is much more readily understood if we use minutes instead of degrees. If we do, we would say that the pick starts at 12 o'clock or one to three minutes past.

To understand this, it is only necessary to place ourselves at the right side of the loom, facing the crankshaft. In this position with our watch in hand, we shall find that top center corresponds to 12 o'clock, back center to 3, bottom center to 6, and front center to 9. Each minute between these figures represents 6°. Hence, if our watch shows 2 min. past 12 o'clock, it is equal to 12° beyond top center. By observing our watch, we can make a reasonably close estimate of the number of degrees of the crankshaft. The later we time the pick, the larger and clearer the shed for the shuttle to pass through; but we must not, of course, time the pick so late that we have to add more force on the pick in order to prevent the loom from banging-off.

The defects are also frequently caused by improper lining-up of the loom, incorrect location of the picker, incorrect adjustment of the parallel motion, making the bottom shed too high or too low in relation to the race board, and giving insufficient lift to the harnesses.

The proper lining-up of the loom will be described under reply to question No. 4. The location of the picker on the picker stick should be such that the point of the shuttle will strike it squarely in the center. The parallel motion should be so adjusted that there will be a barely perceptible rise of the picker toward the extreme forward position when the picker is moved by hand. The location of the bottom shed should be as low as possible without resting on the race board, and its angle should be as nearly as possible parallel with that of the race board when the lay is on the back center or at "3 o'clock." This is adjusted by raising or lowering the take-up roll. Insufficient lift of the harnesses is rarely the cause if we are using the loom builder's cams, provided that they are not badly worn. Make sure that the treadle rolls are in contact with the cams at all times to prevent the harnesses from jumping and vibrating and also to give maximum height to the shed.

Improving Run-Down Sections

In reply to question No. 2, I should say that the first thing to do on a run-down section of looms is to level them, using either the crankshaft or the camshaft for lengthwise leveling and any straight surface on the loom frame for crosswise leveling. Then replace worn rocker-shaft boxes and level independently the rocker shaft, race plate, take-up roll, warp stop motion, and whip roll—the three last mentioned only after they are in the right position. Next check the crank arms for play; and, if there is any, take it up at the same time, and see that the lay is parallel with the crankshaft. Adjust the latter by turning the eccentric crank-arm pins in the lay swords.

Now check the main driving gears for excessive play. If such play exists, it is usually found at the point of contact during the pick. This play must be taken up, either by replacing the worn gears, by setting them closer, or by turning them on the shafts so that another point of contact will be presented during the pick. The latter is a poor fix, but it is frequently practiced in some mills.

Next check the brake of the loom and adjust it so that it will stop the loom with the shuttle in the box, whether the stopping is caused by the warp stop motion or the filling stop motion. Many loomfixers have the habit of neglecting the brakes, but this is a very poor policy.

Poor brakes give both the loomfixer and the weaver a lot of extra, unnecessary work and consequently lower production.

Then go over the warp stop motion and replace all worn parts. If you know the proper height of the warp stop motion, adjust it to work as perfectly as is mechanically possible. Otherwise, delay the final adjustment until the warp is in the loom and you know the proper height. See that no injured drop wires are used on the warp, as these have a tendency to stick so that they will not drop on a thread break and stop the loom quickly. Also be sure to use the largest number of drop-wire banks available, as this will give the drop wires more space and facilitate quicker dropping.

Now check the battery to see that it is parallel to the lay and adjust the transferring mechanism so that it will transfer the bobbins as gently and quietly as possible. Then check binders and box fronts for good leather covering and replace any badly worn covering.

Lining Up the Loom

With reference to question No. 3, as to the proper way of lining up a loom, proceed as follows:

First, remove the fronts and backs of the shuttle box. Then take off both box plates, or lay ends, and remove all dirt and lint that may have collected underneath them. Next replace them and screw them down tightly.

Get a straightedge long enough to span the entire width of the loom from well within the shuttle boxes. This will enable you to line up the race board and the two box plates at the same time. Using a short straightedge is many times misleading. Now, it may be necessary to place a thin cardboard under the box plates to bring them in line and level with the race board.

Replace the box backs and place an empty reed, of the same size as is to be used for actual weaving, in the loom. Using the same long straightedge and with the binder bolts in the box backs out, commence to line up the box plates with the reed. To do this, file off the proper chipping blocks on the back of the box backs; and if, in so doing, you find that the box backs are in back of the reed, build up the chipping blocks and file them down until the box backs are in perfect line with the reed.

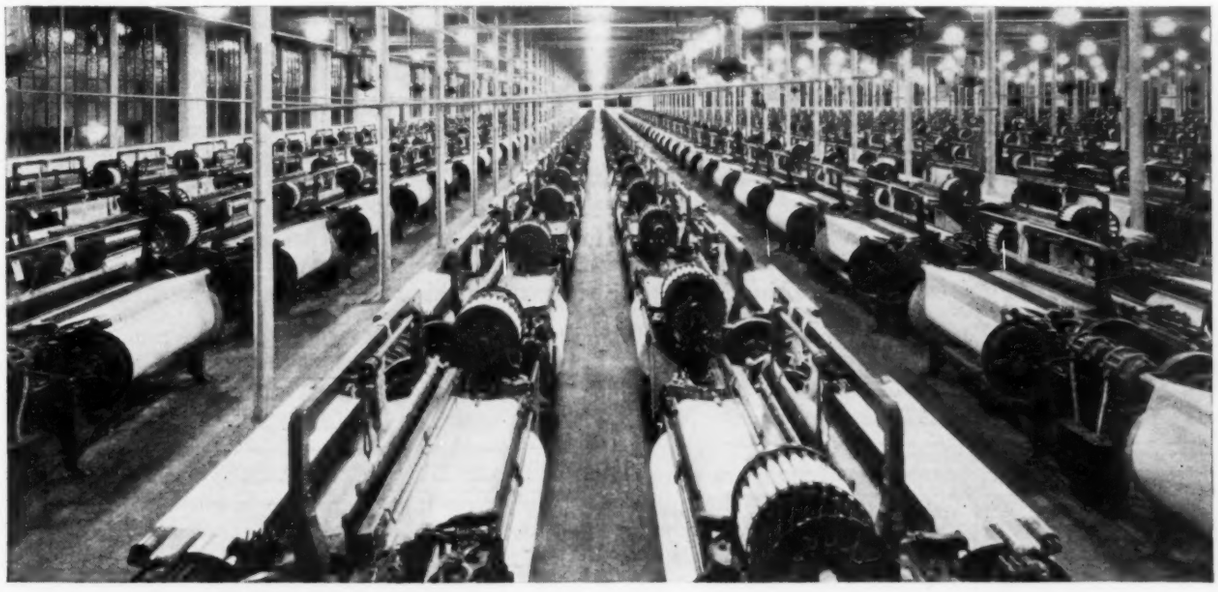
Under no circumstances pack the back of the box backs in order to line them up with the reed. Such packing is very apt to work itself loose and undo the job of lining up the loom. For a permanent job the chipping blocks must be built up by welding and carefully filed down to fit. Do not put the binder bolts in place before the box backs are lined up with the reed, as this will preclude the proper lining up.

Angle of Reed and Box Backs

During the progress of lining up we must also see that the reed and the box backs have the correct angle in relation to the race board and the box plates. The American loom builders advocate a 90° angle, while the European loom builders recommend an 88 to 89° angle. So long as the angle is not over 90°, the loom will run well. However, if the angle is over 90°, the shuttle will be forced to rise in the box. This will cause an uncertain pick, and a wobbly flight of the shuttle is likely to result. It is also advisable to check the angle of the box front in relation to the box plate to see that it is not over 90°.

Now remove the picker and adjust the shuttle boxes so that the point of the shuttle will strike the picker stick in the center. Then, if the picker is not worn too much, replace it and adjust it so that it will neither lift nor depress the point of the shuttle as it enters the hole in the picker. The fact that the third question states that the shuttle is cut at top and bottom would indicate that the picker is set too high, that the angle of the box backs is over 90°, or that the box plates are higher than the race board so that when the shuttle is about to enter the box it strikes the raised box plates and richochets upwardly against the box top. This is a condition against which you should be on guard.

Your fourth question is rather difficult to answer specifically, as the main defect responsible for the classification of your goods as seconds is not given. However, if it appears that the seconds are mostly caused by mechanical faults of the loom, the proper execution of the adjustments already suggested should automatically reduce the number of seconds. If most of the seconds are caused by human failure, instruction and training are necessary.



The first thing to do when tackling a run-down section is to level the looms

Placing responsibility and avoiding conflict of authority in

WOOLEN-MILL ORGANIZATION

By Joseph E. Martel

◆ *There is no standardization in woolen-mill organization. Below Mr. Martel presents his views as to the most suitable plans for staple- and fancy-goods mills of 50 to 100 looms. Others might point out that in most mills it is the treasurer, and not the president, who is the real head of the organization. Some may believe that in a mill of this size a plant manager is superflous or that a second-shift superintendent is not needed. The editors will be glad to receive comments from readers on the subject discussed in this article.*

THE accompanying charts, representing staple- and fancy-goods mills, present a plan for the organization of woolen manufacturing plants to insure efficient control. The organizations given are suitable for 50- to 100-loom plants. While only a few of the functions of the various executives have been shown, the charts indicate the way in which duties and responsibilities should be allocated. In these two charts, the executive sections have been drawn the same, with the exception of the technical-betterment department, which has a designing division in fancy-goods mills. The various departments have been charted, starting with scoured wools and ending with the finished piece.

The president has been charted at the head of the organization and connected directly with the stock room, so that he has easy access to the stock records to check against orders. Next in line, there is a plant manager, who is connected with the store and yard department in order that he may have direct supervision of raw materials, supplies, etc. Under the plant manager, a superintendent of operations has been charted. His duties are to supervise operations and coordinate the departments. The superintendent has the assistance of a second, or night-shift, superintendent, and of a technical-betterment department, which has a designing division in the case of a fancy mill. As the name signifies, the second-shift superintendent carries out the orders of the superintendent of operations, and supervises coordination during the second shift.

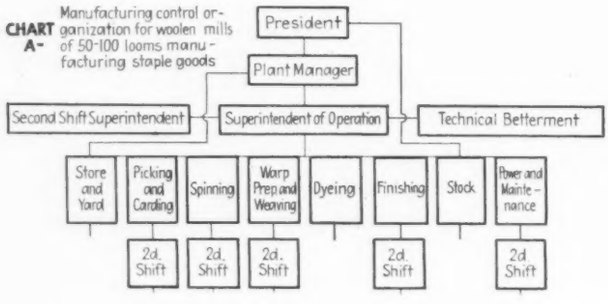
The object of setting up a technical-betterment department is to provide the superintendent with ways and means of studying the causes of wear and breakage of parts; methods of routing, planning, and production control; methods of testing; and the many questions that arise every day in a woolen mill and which require such detailed study. Such a department serves to keep a mill in an efficient condition, as well as showing savings by its studies. In a fancy-goods mill, designing is combined with the technical-betterment department. This division designs the new fabrics, and studies new designs, fabrics, and other subjects pertaining to designing.

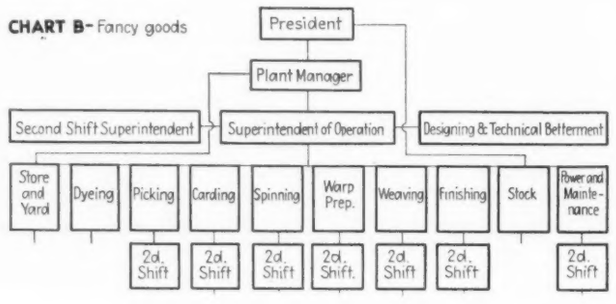
The departments that make up woolen mills using scoured wools have next been charted in a line. Due to the differences in the manufacturing of staples and fancies, the departments have been set up differently. In both of these organization charts, the store and yard have been combined as one department under one head, as seems wise in a mill of this size, and, as previously explained, connected directly with the plant manager.

The other departments are set up as shown on the charts, the dyeing department being in a different position in the fancy-goods organization. Picking and carding are charted as one department in staple mills, while in fancy-goods mills they are set up as two separate departments, each with its own head. The same thing has been done with warp preparation and weaving; namely, they are combined under one head in staple-goods mills, but separated in fancy-goods mills. Burling has not been set up as a department in these charts. In some mills, burling is a division of the finishing department, while in some fancy-goods mills it is a separate department. The process can be handled either way, but the latter seems advisable in fancy-goods mills.

Power and maintenance have been listed as one department. This is a problem that has been a cause of trouble in some mills, merely because the duties and responsibilities were not defined. It is the writer's belief that the problem can best be handled by having the supervision of maintenance of machinery and equipment left to the respective department heads, while the power and maintenance department handles power and the maintenance of the property, inside and out. The watchman should come under the latter department.

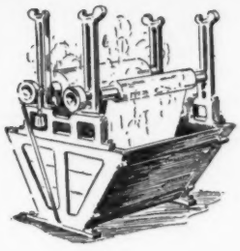
The departments have been divided into shifts, and only those that are likely to be running a second shift have been charted. A second shift could, of course, easily be set up in the departments not shown, and a third shift could be added to the organizations. The department head has charge of his department and supervision of the first shift, and he has shift foremen to carry out his orders and supervise their shifts.





CRACKS AND WRINKLES

Are chief faults to guard against in finishing rayon and acetate taffetas



By Philip Le Brun

CRACKS and wrinkles in rayon and acetate taffetas may be caused by careless handling of the cloth after it leaves the loom and before it reaches the finisher. These defects may also be caused on the looms by a faulty take-up mechanism. For some reason, this may not take up the slack, so that the weaver rolls it up himself by hand, thus causing wrinkles. As more woven cloth is wrapped around the roller, these wrinkles are pressed into sharp creases. Such dry breaks can be removed during the scouring and dyeing operations, unless the rayon has been overstretched or strained. In the latter instance, a permanent impression of the crack or break will remain in the finished goods.

Possibly the most important single operation in handling taffetas is the scouring process. An improper or carelessly handled scour may ruin a beautifully woven piece of material. Taffetas are handled almost without exception on some type of jig. They can be scoured satisfactorily on a full-width washing machine, but the double handling necessary increases the cost.

Since regenerated cellulose must be processed differently from cellulose acetate, the manufacturer should specify exactly which type of yarn has been used in weaving every lot. Then, as a check, the finisher should test the fabrics before entering them into process. Before scouring, rayon taffetas should also be tested for the presence of starch. If any starch is found, the cloth is given two or four ends through a desizing solution and then are batched up. Unless there is need of haste, the roll usually is left overnight. The next day a scour in soap solution, containing a small percentage of soda ash, just below a boil, completes the removal of dirt, size, and other impurities. All traces of soap are washed out by several hot rinses with soft or softened water. If soft water is not available, addition of ½ to 1 lb. of sodium metaphosphate to 100 gal. of water is advantageous. Following the rinsing, the fabric is ready for dyeing.

As a rule, acetate taffetas are sized with gelatin or glue sizes, which are readily soluble in hot water. This type of fabric can be scoured at 160 to 180° F. in a soap bath containing a small amount of pine oil. The usual rinses complete the scour.

Precautions in Scouring

There are a number of precautions to be observed in scouring taffetas. Rayon fabrics are notoriously weak when wet. It is essential, therefore, that all excessive tension be avoided. Such tension, even though it does not rip the cloth, may stretch the fabric to such an extent that the final handle is too thin to be satisfactory. The end cloths must be started evenly, so that no wrinkles roll up to cause permanent moire. Another point to be observed is that the filling of the taffeta is absolutely square with the batch rollers. Running the filling at a diagonal eventually results in the cloth pulling out of shape and wrinkling. Almost invariably such breaks are set in the cloth by the moisture and heat of the process and the pressure of the succeeding layers of cloth on the batch rolls. It is a difficult, if not impossible, task to remove all signs of the break, so that it will be invisible in the finished cloth.

Mixed filling in a taffeta usually shows up on a jig as a badly wrinkled bar across the goods. The finisher is rarely held responsible for such faults, but he is usually blamed for any moire which may result directly from the pressure of the wet cloth on the roll against these wrinkles. Another fault which is due entirely to poor designing is caused by the selvages being slightly heavier than the body of the goods. As the cloth runs on the jig, the roll gradually builds up on the selvages until its appearance resembles an empty spool with a flat center and two high rims. The portion of the cloth adjoining the selvages is often stretched out of shape, causing a final product of poor appearance.

After scouring, the cloth is dyed either on the same or on an adjoining jig. Rayon taffetas are dyed in a slightly alkaline bath using a minimum of glauber salt. While a few dyers use developed colors, the major part of such fabrics are dyed with the faster direct dyes. Addition of some leveling agent is usually recommended. Acetate fabrics are dyed in a light soap bath with special acetate dyestuffs. A fairly high percentage of taffetas are printed. Care must be taken not to fold the cloth sharply after printing and before washing out the print gums, as this is likely to cause a break at the junction of a stiff gum-impregnated part with a softer unprinted area.

Extracting and Drying

Extracting may be carried out on either a horizontal-roll extractor or on a full-width vacuum extractor. The latter type should be fitted with a batching roll, instead of the usual plaiting attachment. The ordinary basket centrifuge should not be used for extracting this type of fabric, because of the numerous breaks which would be formed.

As a rule, acetate taffetas shrink very little and are usually dried on a Palmer. Rayon taffetas are frequently frame dried. In a few cases, the rayon fabrics are stretched to width, partly dried on the frame, and drying completed on the Palmer. Goods dried on the Palmer have a smoother, mellower handle than those dried on the frame.

Next the goods are treated with a softener, a typical solution being 2 qt. of sulphonated olive oil to a 15-gal. mixture. Almost invariably this is carried out on a Palmer. Occasionally, however, a spray machine is used when a duller and somewhat rougher finish is desired. Framing is seldom necessary after softening or sizing, because the typical construction of this type of fabric allows little shrinkage beyond the required finished width. Most taffetas require a light calendering or button breaking to give the cloth the required suppleness. A properly finished taffeta will be free from breaks and wrinkles and will have a smooth, mellow feel with a full, soft—but not raggy—handle.

NEW CARPET WEAVES . . .

By C. F. Harleston

IN A PREVIOUS article (June, 1935, page 69) the writer referred to a carpet weave which showed the pile fabric on the back in a sort of zig-zag formation. A similar weave has been developed which makes use of the zig-zag feature in a more positive way through the adoption of a "shug" motion. The fabric has possibilities for veranda coverings, bedroom rugs, and other domestic floor coverings. A sample is shown in Fig. 1.

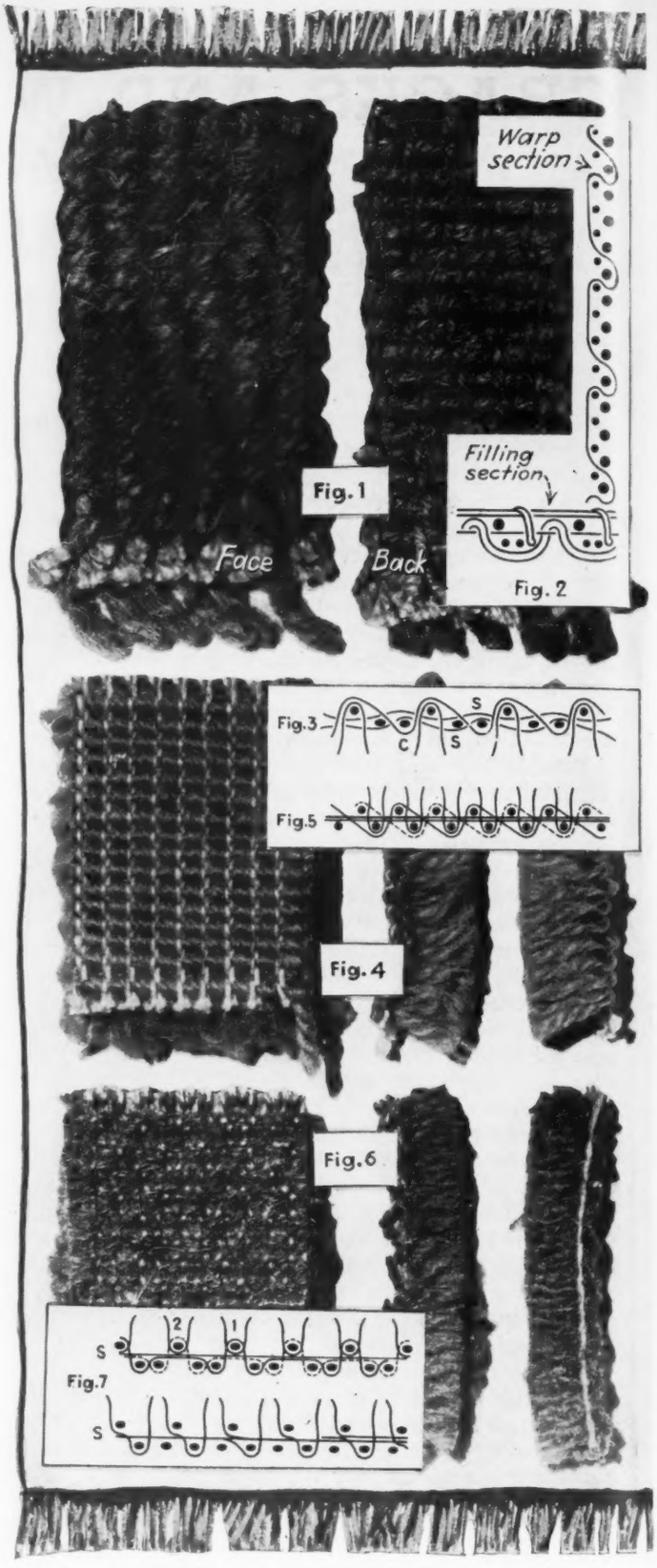
There are at least three applications of the weave—first, in the production of plain fabric or fabric with stripes of color which can be easily arranged for; second, in fabrics utilizing pattern-printed wool warps (as in Fig. 1); and third, in low brussels effects with higher cut tufts, resembling certain hang-tufted styles. The first-mentioned application is suitable for the automobile trade, as well as veranda strips; the second is good for domestic rugs; and the third is appropriate for scatter rugs.

The fabric can be produced by the insertion of the pile yarn through inverted needles fixed in a shaft fastened to the rear of the lay-head and free to move laterally and downward into the shed. The needles are located behind the dents of the reed so as to interfere as little as possible with the lash when raised for the pile portion of the design, in cases where further cut-tufting is desired, as in frieze styles. The lateral movement is controlled by a cam, and the down-and-up motion is achieved by utilizing the to-and-fro movement of the lay. The lateral movement is confined to the width of the dent, and a coarse pitch is effective, such as four per inch.

As will be seen in Fig. 2, which represents sections of the rug in Fig. 1, the dead or padding threads give the corded appearance to the face of the fabric. The style is colonial. In the case of printed warps, the scroll is of a size comparable to the length required to cross over from one side to the other in the dent. There is a thread to each dent. The fabric shown employs a 3-ply wool, printed, with a heavy cotton two-ended chain and a hair-yarn filler. The pile yarn is held by a separate cotton filler in the fabric shown, but changes can be made to suit the one-shuttle-box looms.

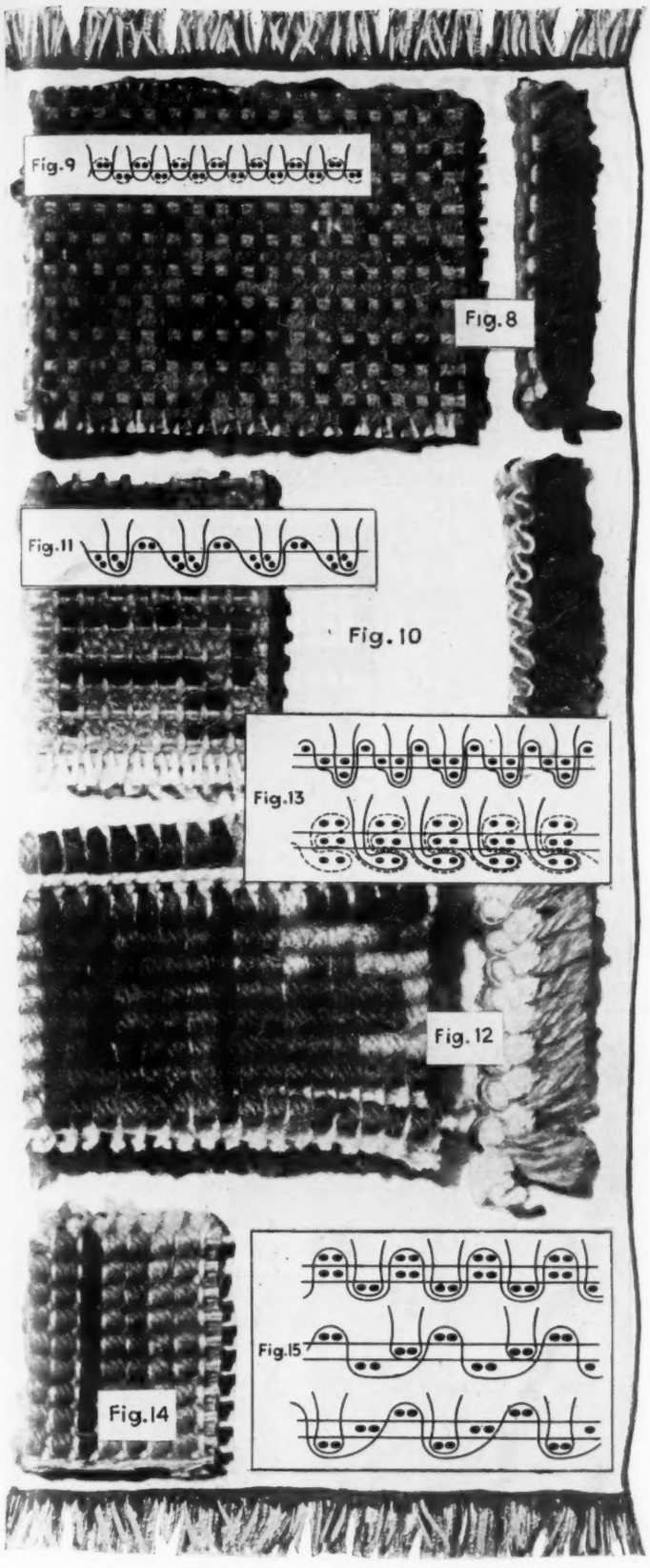
Fig. 3 illustrates a weave that is woven similarly to a double plush—but with the difference that, to avoid the difficulties of double-shuttle double-plush, only half of the fabric, or a single fabric, is woven. As shown, the fabric is loomed back up and the wires are inserted underneath. There is a two-ended stuffer and a single positive chain end. A warp of 3/8s cotton and a filling of 2/2/14s jute are used. The pitch is 176, three-shot, with 10 wires per inch. The pile tuft is 1⅛ in., 3/45s wool. The weave is evident from the illustration and the fabric is designed to show the pattern clearly on the back. When more than one frame is employed, the "dead" yarn is kept up out of the fabric and subsequently sheared off.

In the matter of plains or one-frame qualities, Fig. 4 illustrates a weave of a simple nature with the visible tuft on the back. A section is shown in Fig. 5. It is a two-shot weave, and two-ended stuffer and binding warps are used. Both are of 6/8s cotton. A 3/40s wool makes a suitable quality in 214 pitch.



Wool-backed chenille has given rise to wool-backed Saxony wilton; and a suitable quality can be made from 3/40s wool, 176 pitch, eight wires, with 2/20s heather wool. The heather yarn is spun from waste, preferably with an admixture of cow-hair or broken jute waste.

Fig. 6 is another type of weave which improves the face of the fabric and relegates two-thirds of the wool filling to the back of the carpet. There is a two-ended



Plentiful evidence that designers are seeking novelties of fabric structure

As axminster is the popular rug quality of the moment, much time has lately been devoted to the development of new and novel structures. These are to be found in two-shot, three-shot, and four-shot weaves where a visible pattern on the back has been the aim. This has given rise to various arrangements of the warps in the gears at the same time.

At Figs. 8 and 9 is shown a simple but very effective two-shot weave, giving a clear pattern on the back. Heavier warps than customary are advisable, and they should be of 3/6s or 2/4s cotton count. The pile may be 2/40s, 2/50s, or 3/40s, according to the quality desired. The jute filling is also necessarily heavier than standard, and sufficient weight is imparted by using 20- to 21-lb. jute. There is considerable take-up in one of the binders, but the two-ended stuffer is straight in the fabric. In looming, the double end should be split in the reed so that one end is laid on either side of the tuft. This arrangement serves to bind the tuft. A two-shot loom could be used to produce this fabric with considerable economy, but as a matter of convenience it can be produced on a three-shot loom by the elimination of one of the toothed sections of the gear responsible for the needle motion.

In the three-shot qualities there are more than one method of producing the visible pattern on the back of the fabric, and one of German origin is shown at Figs. 10 and 11. It is a two-plane fabric with the stuffer in one plane and the binder in the other. The pile is looped about a filling pick below the stuffer warps. It will be noted that the pile is looped around one of two picks in the same shedding and that these are diagonally disposed. The pull of the binder end causes the two picks to "nip" the tuft. There may be a further aid to hold the tuft if there are two stuffer ends in use, as the tuft may be inserted between the two. The weave has been found to be satisfactory in good qualities, but not quite so successful in low grades. There is a tendency for the tuft to tilt over after being cut, giving the effect of a high and low row. Special means in the form of a plate moving from the direction of the breastbeam, bends the half-formed tuft at right angles and holds it until the comb takes it up with a view to assuring a clean back. A defect of pattern on the back is the difficulty experienced in pushing the ends of the tuft up with the comb.

At Figs. 12 and 13 a three-plane structure is shown in which two ends act as stuffer and one as bind. A considerable quantity of yarn is embedded in the fabric, and it is therefore expensive to produce; but it is of a strong and durable nature. It will be seen that the ground fabric is very thick. The yarns employed are 6/4s filling and 4/8s cotton chain.

At Fig. 14 is shown another example of a full back, but of cheaper quality. Three alternatives in structure are shown at Fig. 15. In these the stuffer is again on two planes, and the binder holds the plies together. The yarns in this case are of the usual counts.

3/8s cotton binder along with the usual three-ply stuffer. A hard-spun 2/50s wool waste yarn is used for the filling. The appearance of the back of the fabric is improved by drawing-in the binder ends 1, 2, 2, 1, which yields a more novel structure. As shown in the lower diagram of Fig. 7, this same weave may be adapted to pattern on the back, in which case it will show a very distinct pattern with the "nip" or bind in two places, making it fairly secure. In both cases a departure has been made from the standard wilton three-shot type, since there is one pick on the face and two on the back.

ON ONE SET OF DOUPS

Many leno patterns can be made if drawing-in draft is carefully arranged

By Thomas Nelson
Dean of Textile School
North Carolina State College, Raleigh

BY A CAREFUL arrangement of the drawing-in draft, many new patterns can be made on one set of doups through changing the raising or lowering of the crossing threads. When these patterns are made, every crossing thread is raised on a crossed pick when a bottom doup is used; but when a top doup is used, every crossing thread is lowered on a crossed pick. The pattern is obtained by varying the method of operating the crossing harness. These patterns are very often made from motifs such as those illustrated herewith.

Many other patterns can be produced from the same drawing-in draft by simply changing the operation of the crossing harness. The three illustrations in one line of samples illustrate the principle.

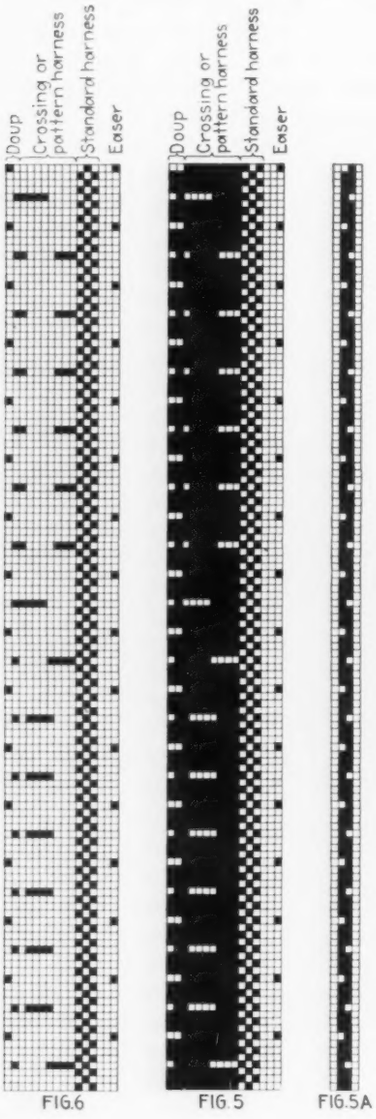
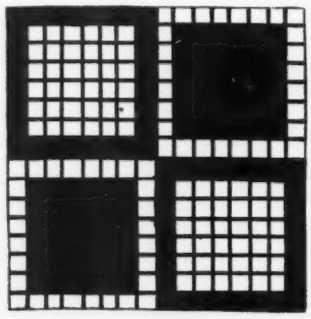


FIG.6 FIG.5 FIG.5A

Fig. 1. (right)



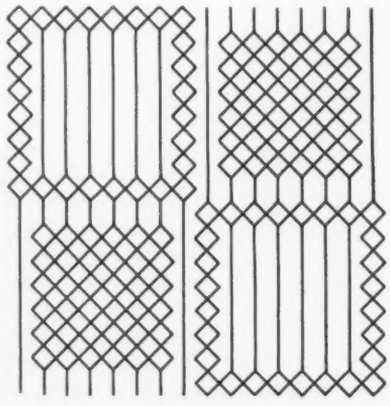


Fig. 2

Fig. 1 is a motif in which each filled-in or solid square represents a diamond effect to be produced in the cloth and empty squares are intended to represent the crossing threads floating. Each square also is intended to represent one crossing thread floating over three standard threads, eight picks to the square. Fig. 2 is an enlarged diagram of the diamonds to be formed in the solid squares, with the threads floating on the surface over the empty squares. Fig. 3 is the fabric produced from this motif. The drawing-in draft for this figure is illustrated at Fig. 4. A smaller number of crossing harnesses could be used, but the arrangement as given enables other new patterns to be developed. The chain plan for this fabric, when a top twine doup is used, is shown in Fig. 5. This pattern can also be made with the Steel Heddle Super doup by substituting Fig. 5a for the doups in Fig. 5. The same pattern can also be made with a bottom "Super" doup by changing the drawing-in draft to have the crossing threads pass under the standard threads. Fig. 6 is the chain plan to produce the pattern in this way.

Fig. 7 is a motif, Fig. 8 an enlarged diagram, and Fig. 9 the fabric produced. Fig. 10 is the chain plan using a bottom "Super" doup.

Fig. 11 is another motif, Fig. 12 the enlarged diagram, and Fig. 13 the fabric produced. Fig. 14 is the chain plan using a bottom "Super" doup.

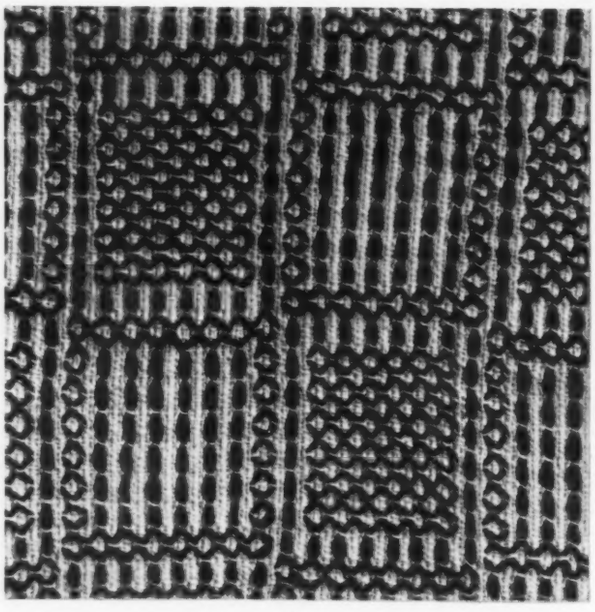
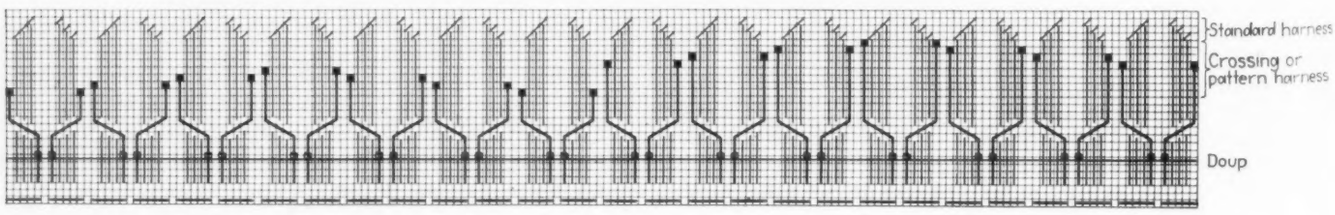


Fig. 3. (above) *Fig. 4. (below)*



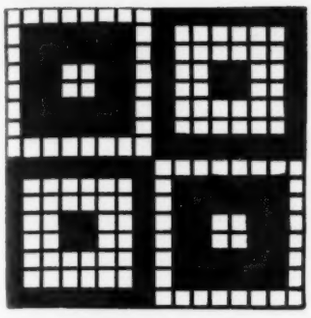
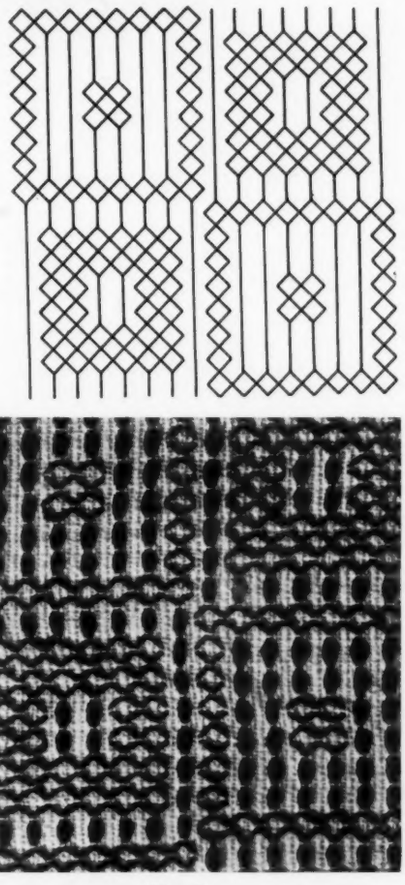


Fig. 7. (left)
Fig. 8. (below)



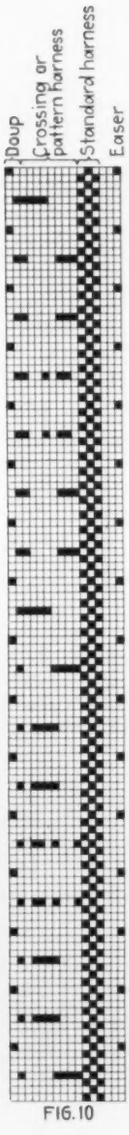


FIG. 10

Fig. 9.

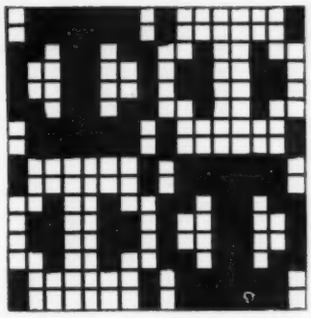
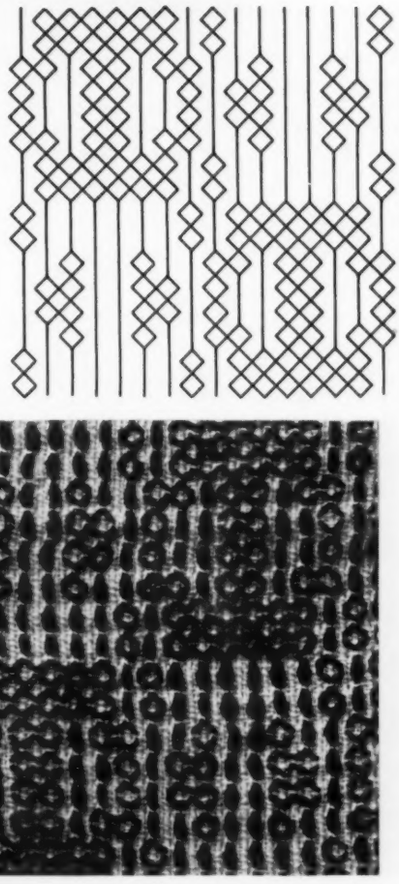


Fig. 11. (left)
Fig. 12. (below)



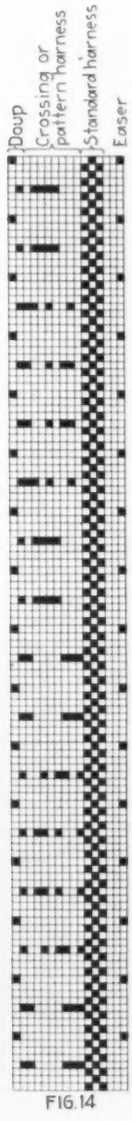


FIG. 14

Fig. 13.

UNSTRETCHABLE COLLARS

Can be made on any old ribber

By Paul W. Niles

IT IS a very common practice nowadays to lay rubber in a knit fabric to give elasticity, but there are times when it is profitable to lay in a textile yarn to give rigidity. For instance, collars which will not stretch and hence will hold their shape can be made that way. And any old ribber will do. For example, the other day I saw a knitter pull an old 12-in. Nye & Tredick out of the scrap pile and make an excellent unstretchable collar in the following way:

He had an idea for a sailor collar for children's suits and sweaters. The machine had four feeds and had been used for the collarettes of men's underwear for many years.

He made two extra yarn guides and fitted them into the space between the dial and cylinder in front of the regular yarn carrier. To fit the yarn carrier close to the top of the cylinder where it would not rub either the cylinder or the dial, he had to draw the dial needles back far enough to clear the edge of the dial. He did not change cams in the cylinder, but ground out a little before the rise cam. He did, however, make a new cam for the dial to hold the needles back.

The extra guide was fastened to the cylinder section plate and was adjustable in every direction by means of set screws on the U-shaped holder. The hole for this feed was made at least a half inch long to keep the yarn straight above the needle, and the feed was hardened. The extra yarn was run between the needles—that is, behind the cylinder and below the dial—and it was not knit in but was merely laid straight with the stitches knit around it.

The yarn was a relatively soft one, but it gave no appreciable stretch and the collar laid flat when cut. It made a good appearance in the finished garment.

NARROW-FABRIC WEAVES

A brief survey of miscellaneous types available to the designer

By Edwin J. Gibbons

◆ *Weaves discussed in this article include bracket, reverse, reversible, and four-change. In a previous article, November, 1934, page 74, Mr. Gibbons covered mock leno, honeycomb, combination plain, and through-and-through.*

IN BRACKET WEAVES one system of warp and filling usually consists of a comparatively fine yarn, and this is completely or almost completely hidden by another system of warp or filling or of both warp and filling. The inner system of warp and filling usually interlaces in plain-weave order, while the outer system generally employs a loose order of interlacing. Obviously, the inner fabric may consist of an inferior grade of yarn. In their simpler forms bracket weaves resemble rib weaves or basket weaves in which have been incorporated an extra warp for firmness.

Fig. 19 is a design for a bracket weave in which the inner fabric interlaces in plain-weave order and the bracketing warp interlaces in 4/4 warp-rib order. Two repeats each way are shown.

Fig. 20 is a cross-section showing the interlacing of the first four ends of Fig. 19. It clearly illustrates how bracket weaves are formed.

Fig. 21 shows an arrangement in which the inner warp interlaces in plain-weave order and the bracketing warp interlaces 8 up and 8 down for four ends and then 8 down and 8 up for four ends.

Bracket weaves may also be constructed in two-to-one order, and almost any long-float weave may be employed for the bracketing warp.

When two warps and two fillings are employed, one bracketing system may appear on the face of the fabric while the other system appears on the back, and vice versa. If the bracketing warp and filling are of different colors, novel effects may be obtained.

Reverse Weaves

Reverse weaves are employed in narrow fabrics as a means of all-over ornamentation for lingerie tapes, ribbons, light-weight beltings, neckties, etc. They are always reversible and produce the best results with a square or nearly square texture.

Reverse weaves are formed by selecting a small weave or design and combining this weave with the same interlacing transposed and reversed. The weave selected usually repeats on three to six ends and picks and constitutes one-fourth of the completed design. Figs. 22, 23, and 24 illustrate the manner in which reverse weaves are developed.

In Fig. 22 a small weave has been painted in on design paper; and for the purposes of explanation, the remaining quarters of the block have been lettered *B*, *C*, and *D*. To the right of the selected weave, or in section *B*, should be placed, in a transposed position, the reverse of the original interlacing. In other words, the raisers of the original weave must be replaced by sinkers, and vice versa, and the direction of the twill reversed, as in Fig. 23. Section *C* is then painted in with the exact interlacing as in section *B*, and section *D* is filled in with the original weave to complete the design, as in Fig. 24. Note that in the breaks between the four sections of Fig. 24 raisers appear against sinkers, and vice versa. This is an essential requirement.

Fig. 25 illustrates an ornamental ribbon interlaced according to the design shown in Fig. 24.

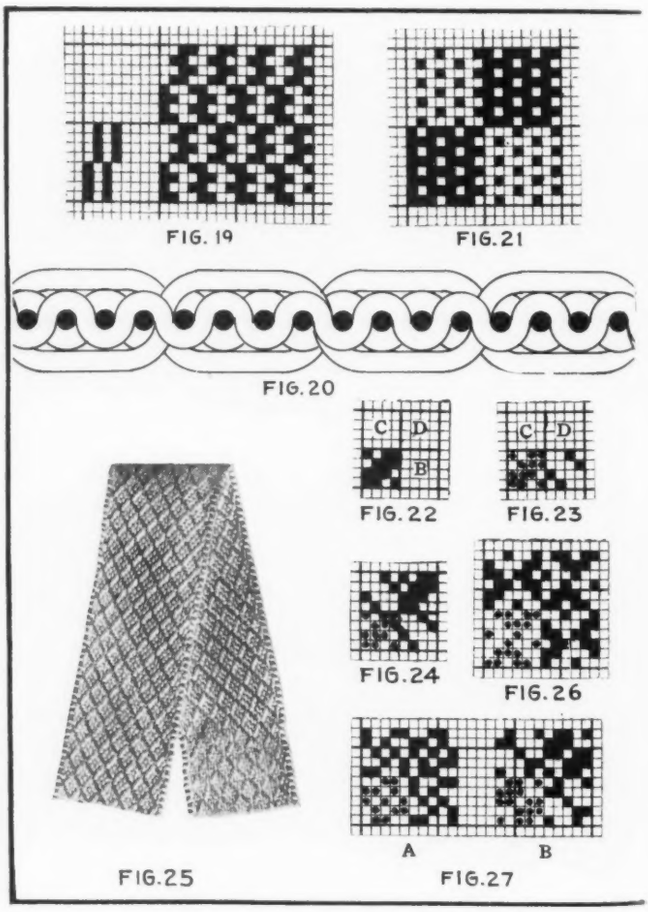
Fig. 26 shows a reverse weave that is constructed in a slightly different manner.

At *A* and *B* in Fig. 27 are other examples of reverse weaves.

Related closely to the reverse weaves are a host of reversible weaves that lend themselves to extensive use in the manufacture of narrow woven fabrics. These weaves employ all types of interlacings, and their construction is governed by no rules except that they must present the same appearance on both the face and back of the fabric.

Figs. 28, 29, 30, and 31 are examples of reversible weaves.

Fig. 32 represents a portion of a tubular tie in which the interlacing is the same as shown in Fig. 31. The



All rights reserved by author. Other articles of this series on the design and construction of narrow woven fabrics appeared Nov. 16 and Dec. 28, 1929; Jan. 25, March 1, April 5 and 12, June 21, Aug. 2 and 30, and Nov. 5, 1930; Feb. 14, May 9 and 16, Aug. 22, and Oct. 31, 1931; Jan. 23 and May 14, 1932; March, 1933; and March and November, 1934.

only reason for using this design on the fabric illustrated was the attractiveness of the weave.

The even-sided twills, of course, are always reversible, as also are many of the rib weaves and basket weaves.

Four-Change Weaves

An effective method of constructing original weaves is by the "four-change" system. Weaves developed by this process are more or less accidental, as it is impossible to predict the final interlacing; but some of the features may be foretold. A small, square motif is used as a base, and the number of ends and picks in one repeat of the completed weave will always be twice the number of ends and picks represented in the motif. If an even-sided motif is employed, the resulting weave will be even-sided; and if the motif is warp-effect or filling-effect, the resulting weave will conform to that effect. The completed weave will always be square in one repeat.

The procedure in constructing four-change weaves is as follows: First select a small weave or motif requiring four, six, or eight ends and picks and place this on design paper. Then mark off on a separate piece of point paper a space comprising twice the number of ends and picks that appears in the motif. Next, place the base weave on the odd-numbered ends and picks in the design—first, third, fifth, etc. When this is done, turn the design one-quarter around either to the right or the left (but do not turn the motif) and place the base weave on the odd-numbered ends and picks as determined from the changed position. Again turn the design one-quarter around in the same direction as before and again place the base weave on the odd-numbered ends and picks as determined from the new position. Once more (for the third and last time) turn the design one-quarter around in the same direction as before and once more place the base weave on the odd-numbered ends and picks. The weave is then complete.

At *A* in Fig. 33 is shown four ends and picks of the 2/2 twill, and at *B* is the resulting four-change weave. The initial repeat of the weave is represented by dots.

Fig. 34 shows one repeat of the two-up, two-down, one-up, one-down twill weave as a motif and two repeats each way of the resulting four-change weave.

Fig. 35 illustrates two repeats each way of a four-change weave resulting from the use as a motif of eight ends of the three-up, two-down, one-up, two-down twill, arranged as shown at *A* in Fig. 35.

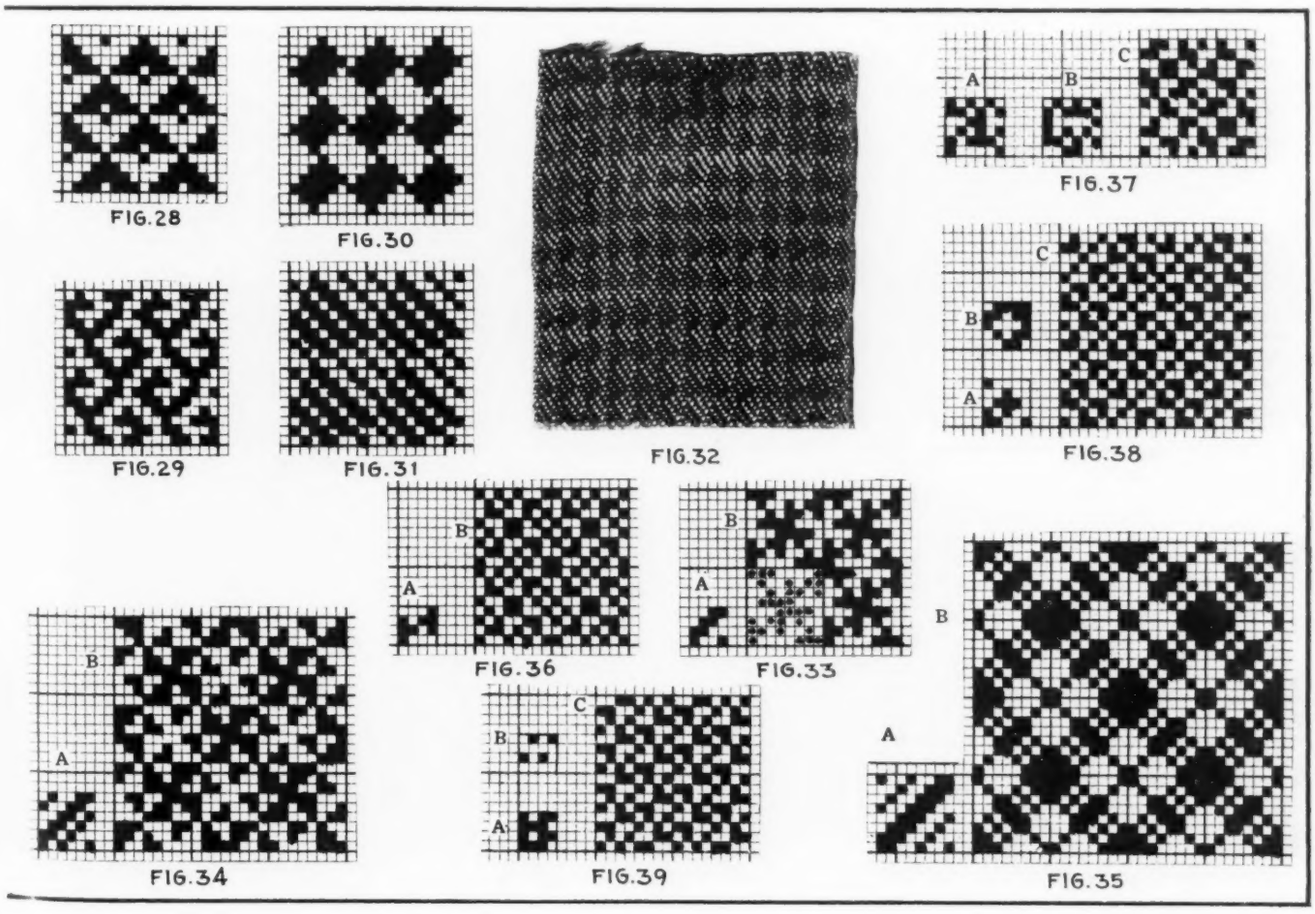
Fig. 36 shows two repeats each way of a four-change.

It is not always necessary that the four-change weave be constructed entirely from one motif. Two motifs may be used, one for insertions in positions first and third, and another for insertions in positions second and fourth. Both must repeat on same ends and picks.

Fig. 37 shows a four-change weave in which the motif shown at *A* is used for insertion in the first and third positions, and the motif shown at *B* is used for insertion in the second and fourth positions. The motif *A* has been changed at *B* by transposing the first three ends and the second three ends.

In Fig. 38, *A* and *B* are the filling effect and warp effect, respectively, of the same motif; and at *C* is the four-change weave resulting from inserting motif *A* in the first and third positions and motif *B* in the second and fourth positions.

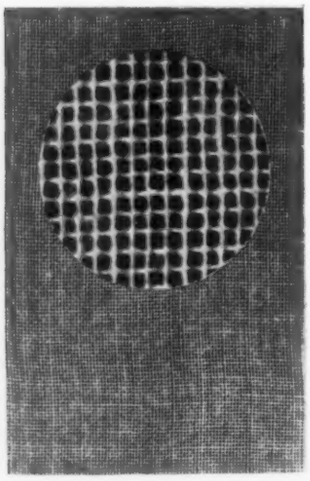
In Fig. 39 motif *A* is used for insertion in the first and third positions, and motif *B* (which is the filling effect of motif *A* given one-quarter turn) is used for insertion in the second and fourth positions.



STAPLE COTTON FABRICS

By John Hoye

THIS MONTH Mr. Hoye discusses the constructions, finishes, and uses of voiles. In previous articles of the series, published in January and February, he did as much for cheese and tobacco cloths, print cloths, fine plains, carded and combed lawns, clipped-spit lawns, organdies, airplane cloths, balloon or typewriter cloths, oxfords, and pongees.



PLY-YARN VOILE

40", 58x56, 100/2 yarn warp and filling

Voile

Voiles are sheer, almost square-constructed, light-weight, plain-woven cloths with round threads. They are made of hard-twisted combed yarns in both ply and single. The best voiles are usually imported from England. These are made of 2-ply combed and gassed yarns with a hard twist—numbers 100/2, 140/2, 160/2 and 220/2. In twisting, the ply yarns are twisted in the same direction as the singles. This type of twisting is known as "twist on twist" and gives a tight, wiry yarn. Gassing frees the ply yarns of projecting fibers and makes them appear rounder.

Because of these round, smooth yarns, voiles are bright and sheer. Also because of the hard-twist ply yarns used, voiles, although light in weight, have a crispness, body, and draping quality not found in cloths of the same weight made of ordinary yarns. The majority of domestic voiles are made of single combed 50s yarn of different twists. These voiles have a varying amount of crispness. Single 60s and 70s hard-twist yarns are also used with higher warp and filling constructions. These are sometimes referred to in the finished state as *"chiffon" voiles.*

The 50s single-yarn voiles are made with yarns of hard-twist, medium-hard twist, and slack or ordinary twist. The weight is usually omitted in quotations, but the kind of twist used is always given. Voiles also are occasionally made of hard-twist single warp and ply filling yarns.

All voiles are made with wide tape selvages.

Ply-yarn voiles: Combed and gassed (usually imported or made from imported yarns).

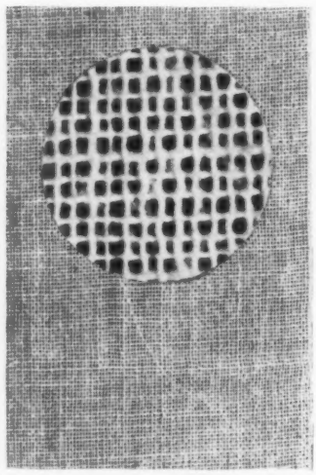
Widths	*Constructions*
Usually 40" also 45"	60x56 to 74x76

Yarns
100/2 up to 220/2

Examples of Standard Gray Constructions

40"	60x56	50s single warp and 100/2 filling
40"	58x56	100/2 warp and filling
40"	60x56	100/2 warp and filling
40"	60x60	120/2 warp and filling
40"	64x64	140/2 warp and filling
40"	66x66	160/2 warp and filling
40"	74x74	180/2 warp and filling

Single-yarn voiles: Made of combed yarns with different amounts of twists.



Berkshire Fine Spinning Associates, Inc.

HARD-TWIST SINGLE-YARN VOILE

40", 60x52, hard twist

Examples of Standard Gray Constructions

40"	60x56	hard-twist yarns-50s warp and filling
40"	60x56	medium-twist yarns-50s warp and filling
40"	60x52	slack-twist yarns-50s warp and filling
40"	68x60	hard-twist yarns-60s warp and filling
40"	68x76	hard-twist yarns-70s warp and filling

Other cloths are sometimes made with wide tape selvages to imitate the voile. For example: 36", 48x48, 7.65, carded print-cloth yarns. The open-weave effect helps to simulate the appearance of the voile.

Fancy voiles: The following are variations of the plain voile:

a. Seed voile: formed by novelty seed yarn, usually in the filling.

Example: 36" 60x36 7.00

b. Shadow stripe: Formed by weaving sections of the warp closer together than the remaining warp threads. This arrangement forms heavier stripes alternating with lighter stripe effects across the width.

Example: 36" 62x54 8.00

c. Splash voile: Formed by using a slub yarn in the filling, which produces a series of heavy slubs or splash effects throughout the cloth.

Example: 36" 62x54 8.00

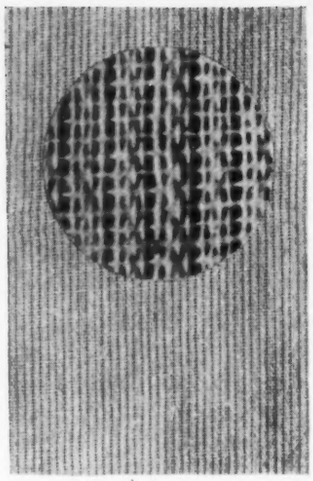
d. "Piqué" or corded voile: Formed by arranging the spacing of the warp threads to resemble the narrow cords found in piqués. This fabric is also called a *piqué dimity.*

Example: 36" 80x56 7.45

Other variations are produced by means of woven satin stripes and checks, also cord effects in white and colors. Ratiné yarns are often used for decoration as stripe or checks on a voile ground.

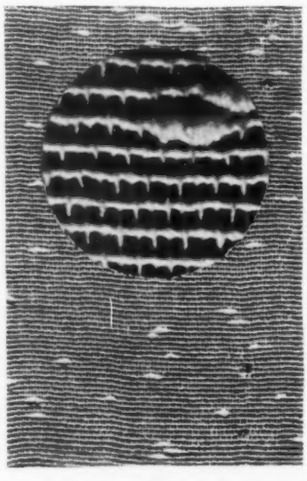
Finishes used: Mercerized, printed flock-dot effects. These fabrics are usually framed in finishing as near to gray width as possible, to obtain a sheer effect.

Uses in finished state: Summer dresses, blouses, bedspreads, draperies, underwear, scarfs, children's dresses, lamp shades, dolls' dresses.



"PIQUÉ" VOILE (finished)

36", 80x56, 7.45 yd. per lb. (in gray)



"SEED" VOILE

36", 60x36, 7.00 yd. per lb.

Work of the dyer is complicated by demand for low-luster and spot-proof

By Samuel G. Newman

HOSIERY FINISHES

THE cry for low-luster hosiery, water-repellent hosiery, and spot-proof hosiery has done much to make the finishing operation a complicated affair. Today the dyer cannot hope to satisfy his mill's requirements simply by treating the goods in a finishing bath of silk boil-off liquor and acetic acid, as he did a few years ago. Times have changed, and each of various types of hosiery demands a different finishing treatment from that given to others.

A stocking made of high-twist silk needs no dulling, while a tram-silk stocking must be dulled. A 7-thread service weight must be given a different treatment from that necessary for a 4-thread chiffon. The service-weight receives less sizing and gum, since it already has body. Few, if any, of the service-weights call for a spot-proof finish. The chiffon number, on the other hand, receives much more sizing and gum in order to produce more body. More and more of the 4-thread chiffons, as well as the sheerer hose, are being given a spot-proofing treatment in addition to the regular finish. Since all these finishes have a greater tendency to make the hosiery stick to the boarding forms, a larger amount of scrooping oil is used in the chiffon finishing bath than in the service-weight finishing bath. By means of a suitable finish, a flimsily knit style is given extra body, which helps it withstand handling in the various operations prior to boxing. Proper delustering assits somewhat in covering up sleaziness and other minor knitting imperfections. Some finishes improve the wearing qualities of the hosiery by building up resistance to breakage and runs.

A dyer can begin to control the finish with the first operation of degumming. A clean, soft, scroopy feel can be produced by completely removing the gum or sericin. A wiry, stiff handle can be obtained by removing only a small portion of the sericin. However, the main task of finishing confronts the dyer after the degumming and dyeing operations. He has many chemicals at his disposal to develop a desired finish. Some dyers prefer to develop their own delustering formulas. Other technicians find it to their advantage to purchase ready-made delustrants which yield satisfactory results. It is up to these men to determine which products, singly or in combination, are best suited for their needs.

Some delustrants have a tendency to throw a dyed shade on the yellower side and thus spoil a perfect match. The same delustrant may give the same shade a different tone if other dyes are used to obtain the match. It is essential, therefore, for the dyer to know beforehand how each particular delustrant will react on different colored hosiery, so that he can make the necessary allowance during the dyeing. This knack of making the proper allowance is acquired only after considerable observation and experience. In trying out a new delustering preparation, the dyer or the chemist should first test it on a pair of stockings in a beaker to see what effect the compound has on the shade.

Best results from delustering are obtained when the goods are rinsed and centrifuged after dyeing and then loosened and rebagged before delustering in a fresh bath. Some dyers employ more than one bath to apply the desired finish, although the one-bath method seems to be the more popular. Ordinary tap water has a temperature around 50 to 55° F., which is not as suitable for delustering as a temperature between 80 and 100° F. There is a limit to the amount of delustering compound that can be applied to a batch, since an excess causes chalky streaks. The dulling usually varies from 2 to 5%.

Strain Before Using

Waterproof, spot-proof, and similar types of finishes vary from 3 to 10%, depending on the amount of spot-proofing or the type of handle desired on the goods. The sizing and dulling compound should be strained before it is added to the bath. Some dyers believe that better

results are obtained in a short bath, perhaps up to the axis of the drum. More often, however, the goods are worked in a machine three-quarters full of water, which seems to produce better results. A short bath increases the danger of the lot taking up the finish unevenly. The goods are seldom rinsed after the finishing treatment, unless inaccurate weighing of the chemicals or improper manipulation of the bath has caused an overstepping of the finish desired. Finally, after the finish has been applied, a small percentage of a high-grade sulphonated oil with lubricating properties may be employed to keep the hosiery from sticking to the forms.

Proper extraction is important, and a standard length of time for centrifuging should be adopted. Too much extraction should be avoided, as it will cause certain types of hosiery to curl at the welt ends when they are dried on the boarding forms. It is good practice to board all goods immediately after they are dyed and finished. When it is not possible to board the goods even the following day, as on week-ends, it is better to deluster the first thing Monday morning. To allow delustered and finished goods to remain in the dyehouse over the week-end is to invite trouble.

When others thought it crazy to build, one mill started a program of

PLANNED EXPANSION

By Bruce E. Maxon
Consulting Engineer, Cincinnati, Ohio

◆ *The amount of machinery alone does not determine the maximum production of a plant; there is also the layout to be considered. In this article, Mr. Maxon describes a part of one of those "operations" that definitely benefit the patient. The same approach and principles can be applied to any type of mill. Further developments at the plant will be described by Mr. Maxon in a future issue.*

IN JUNE, 1933, the Reliance Dyeing & Finishing Corp., Covington, Ky., found itself in a situation which required that steps be taken looking toward the future. The business of the company is the dyeing, finishing, and waterproofing of cotton piece goods, and the history of the plant had been similar to that of many others in various textile lines. When business had been good, the managers had added a building here or there as immediately needed, so that, in 1933, the work was scattered through ramshackle buildings. There had never been a thought of logical planning for future needs. Second-floor storage space for incoming work was used at great inconvenience, and the office, sample room, and shop were poorly housed. Everything was old, including the sprinkler system in the frame buildings. Original owners, with big ideas, had installed a hand-fired, water-tube boiler, which was too large and a continual source of repair expense. A poor return system existed in the plant, which did not properly drain the lines. To make direct replacement of each faulty unit would have been an expensive undertaking, leading to no adequate final result.

General business was very poor in 1933, and the business of this plant was no exception. Very few plants were even thinking of making any capital expenditure whatever. However, the difficulties encountered in handling yardage convinced the president of the company, H. J. Krantz, that something would have to be done to reduce overhead costs and to prepare for the larger volume the company expected to produce when general business conditions improved. The machinery of the plant was adequate for a large production, but the actual 1933 production was limited to a figure far below capacity. The object of the management was to improve and balance the plant facilities and housing to a point where the actual productive capacity of the plant would equal the nominal capacity of its machinery. Therefore, it was decided to prepare a logical program of improvement and expansion, and a firm of independent civil and mechanical engineers was called in.

Preliminary Studies

The physical facts of the existing plant and equipment were first obtained by careful study, together with operating costs and data. The original layout of the property, as shown in Plan I and in Fig.1, included one good, brick, mill-type, two-story building, and several old structures in a poor state of repair. The backtracking and interference involved in moving goods through this type of layout meant avoidable expense for indirect labor.

It is easily seen from Plan I that the original boiler room was in a position which would completely block any future expansion. It was further discovered that the return system was wasting a great deal of heat and water which should have been saved, and that the boiler efficiency, on account of its condition and method of firing, was only about 50%.

It is much easier and cheaper to move machinery on paper than in the plant. Consequently, scale drawings and templates to scale of all machines were made for a thorough study of all conceivable arrangements. The owner and the engineers cooperated in arriving at the most desirable final layout, which is indicated in Plan II. In this plan, there is a balanced provision for incoming storage and handling to machines, and for flow of work through the operations to outgoing storage, with convenient shipping facilities. With this layout, the final operations are close to the office and under the eye of the management. Work flows through the plant in the track of a large *S*, without interference. The contemplated building addition was 9,000 sq.ft., single floor. A

Fig. 1. Original buildings—1933

Fig. 2. First addition—1934

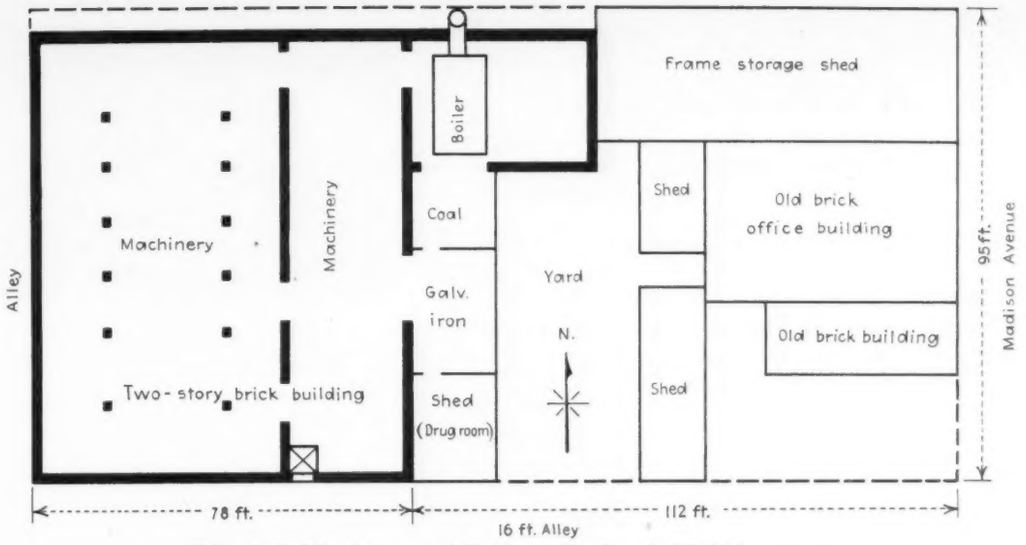
careful estimate determined the size of boiler which would be adequate for the total operations that could be accommodated on the land available. The ultimate cost was estimated at $30,000, to be undertaken in steps as follows:

Step No. 1. Raze four old buildings and erect new office and sample room to fit into general plan.
Estimated cost $2,000

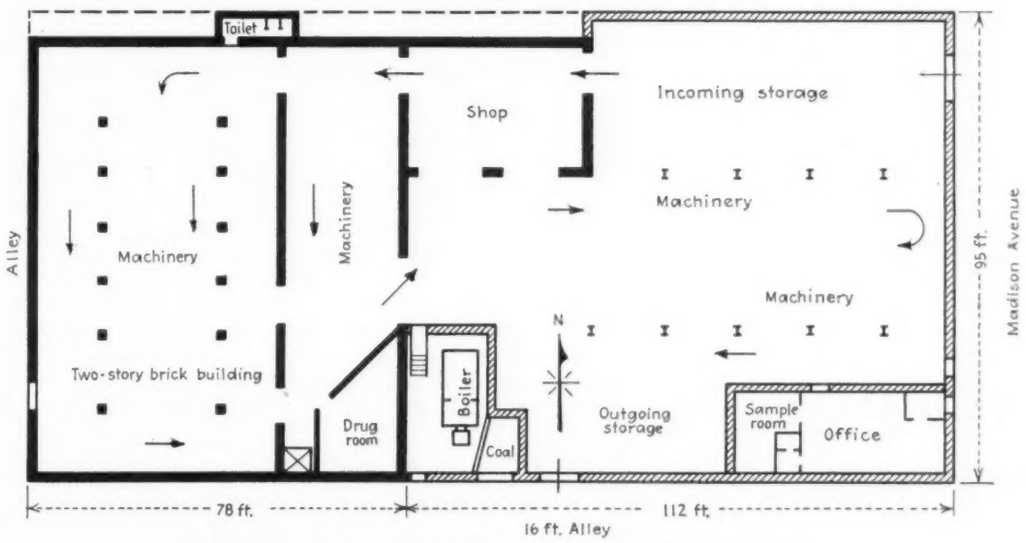
Step No. 2. Wreck old boiler and stack, and install a new boiler and return system in a new boiler room, together with as much additional mill floor space as can be properly financed.
Estimated cost $14,000

Step No. 3. Erect single-floor building to revamp the layout and complete the original plan.
Estimated cost $14,000

Total estimated cost $30,000



Plan I. Original layout of Reliance Dyeing & Finishing Corp.



Plan II. Proposed final layout to be completed in three steps.

A very definite provision of the project was that each of the above steps of construction should fit into the general plan, so that every dollar spent would be a permanent investment.

The First Step

No actual construction was started until the summer of 1934. At that time, it was found that the sprinkler system in the old buildings would have to be replaced if they were allowed to stand, and that these buildings constituted a fire hazard, affecting the insurance rates on the whole property. Like many old structures, they had outlived their usefulness. Consequently, they were torn down, and plans and specifications were prepared for a new office and sample room. Many people thought at the time that an owner was crazy to do any building. However, the new building, 19x46 ft., was erected, taking advantage of the low building costs then existing. The balance of the lot was fenced, and waste material was filled in to bring the ground level near the future floor level. The vast improvement in the appearance of the plant may be noted from Fig. 2. The clean, well-lighted office and sample room were a valuable addition. The effect of the improvements was to

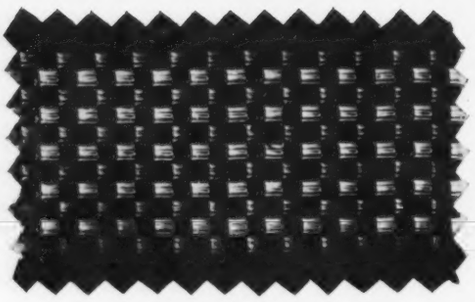
reduce the insurance rates on the property from $2.68 to $0.312 per $100, a reduction of 88%.

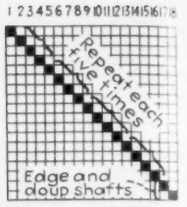
During 1934, along with general business, the total plant production continued at a low figure. However, the amount of goods held in storage was out of proportion, and the amount of floor space was inconveniently small. Second-floor storage space had to be used for incoming storage, involving extra trips with goods. Orders were frequently of the rush variety, and it became necessary to rent additional storage space. Boiler conditions continued to get worse and troubles from that source were likely to occur in rush periods. This gloomy picture was relieved somewhat by the lowered overhead costs and prospects of better business. Further progress was in order, and it was determined to undertake the second step of expansion in 1935. Just what was done will be described in a subsequent article in these columns.

BARATHEA WEAVE

At present popular for tie fabrics

By John Picone





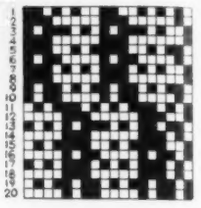


Fig. 1. Barathea tie fabric

Fig. 2. (Upper) Entering draft

Fig. 3. (Lower) Loom card

THE sample shown in Fig. 1 is typical of the barathea tie fabrics which are now popular and which may be expected to remain so for some time to come. This particular fabric contains 150-denier rayon in both warp and filling, is set 50 in. wide in the reed, with a 50 reed and 4 ends per dent, and is filled with 100 picks per inch.

The question arises time and again as to whether it is feasible to make long warps. The writer has found that long warps pay, and he is prepared to assert that lengths of 1,200 yd. are now being successfully employed by mills. However, with such warps it is advisable to use the new flange beams.

For the fabric illustrated 16 shafts were used, repeating every 20 picks; but the material could have been made on eight shafts. It is more practical to use the larger number of shafts when long tie-silk warps are employed, because it is necessary at various times to make slight changes in the weave. Through minor changes in the lifting of the shafts many different effects can be obtained. Also, of course, the larger number of shafts keeps the ends and heddles from rubbing and causing broken and chafed warp threads.

The sample is a three-color combination consisting of a black warp and of 110 picks of black, 10 picks of red, and 10 picks of white, the red repeating six times and the white five times. The stripe effect can be increased or decreased as desired and different color combination employed. Although a 4x1 loom can be used, a 4x4 is better because the multiplier will obviate the necessity for long chain cards.

It will be noted from the entering draft, Fig. 2, that the warp is entered 1 to 4 five times, 5 to 8 five times, 9 to 12 five times, and 13 to 16 five times. It is a straight draw with 80 ends to a repeat. There are also two extra shafts used for the doup and edges, the doup providing a binding in the center of the fabric to divide it into two cloths. The setting of the harness should be at least ½ in. away from the fell of the cloth.

In Fig. 3 is shown the loom card, repeating on 20 picks. It will be noticed that in this weave the first 8 shafts correspond to the last 8. This indicates, as already suggested, that the fabric could be woven on 8 shafts.

If it is found in the weaving of this tie fabric that the warp ends have a tendency to cross or snarl between the lease rods and harness, it is advisable to use a breaker rod.

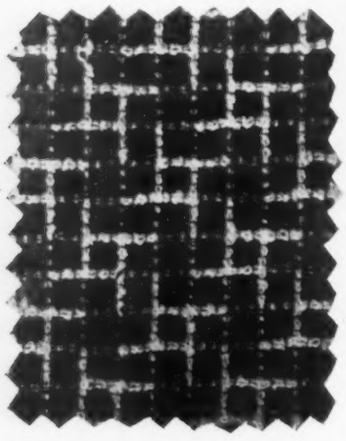
ALL-COTTON NOVELTY CHECK

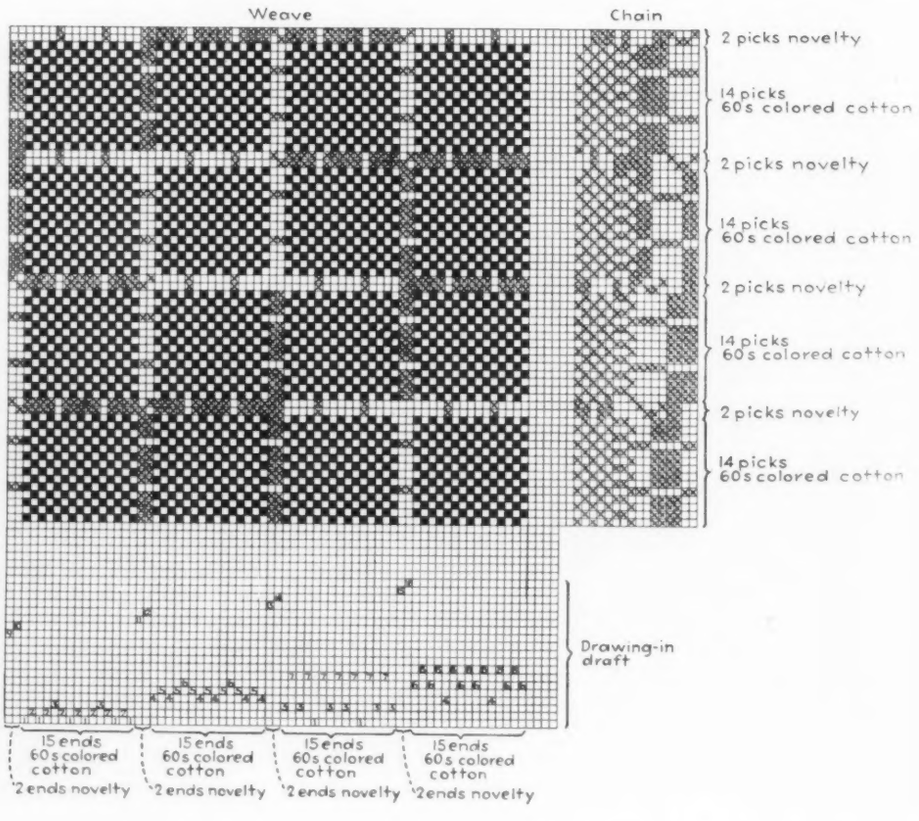
An attractive fabric for girls' dresses

By Harry L. Robertshaw

AN exceptionally attractive all-cotton novelty check is shown herewith. The construction is 36½ in., 74x70 ground. Both warp and filling consist of a white ratiné to size 3½ and a 60s combed color. Warp and filling patterns are shown with the weave, drawing-in draft, and chain draft.

The particular sample photographed has a brilliant red ground, but of course various other colors can be used. It is particularly suited to girls' dresses.





The super was at his wit's end until a visitor discovered the cause of

By David W. Welsh

SHADED WOOLENS

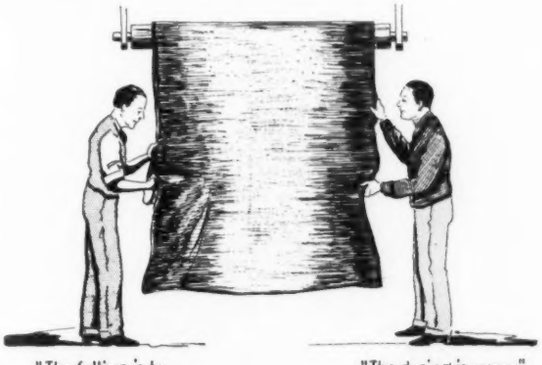
A LARGE woolen mill making heavy kerseys, piece dyes, mainly navy and brown, was suddenly afflicted with an epidemic of side-to-center shaded goods, very pronounced dark sides and light centers. Every process in the dyeing and finishing had been changed half a dozen times in an attempt to overcome the trouble, but nothing thought of and tried seemed to change the condition in the slightest.

The manager, the finisher, and the dyer were frantic; conferences were the order of the day; illogical suggestions were rife; far-fetched theories were advanced and as quickly exploded. One day the dyer was all wrong; the next day the finisher was to blame.

"The fulling must be at fault," said the dyer, "I know the soap is only strong enough to drive the dirt and oil to the edges where it lodges and is naturally dyed darker."

"The clean part always dyes darker, and the goods are darkest at the selvage," declared the finisher.

Somebody thought the steam blowing must be at fault,



"The fulling is to blame," said the dyer

"The dyeing is wrong," declared the finisher

that the edges were getting an extra cooking, which made them dye darker. It was suggested, therefore, that the holes be plugged up with shoe pegs for 4 in. on each side of the perforated cylinders. This was done, but the dark sides persisted.

Someone else decided it must be that the flapping edges in the dye kettle held the color and that the selvages should be tacked. So tacked they were, and the goods ballooned beautifully; but the centers were still several shades lighter than the sides. They even went back to the looms, examined the temples, changed from burrs to the old side strap, put more tension on the beams, tried less tension on the beams, reeded them finer, reeded them coarser; but dark edges still stared them in the face.

Soap and Water

The scouring was changed about every other day, palm-oil soap gave way to olive, olive was superseded by cotton-seed, and cotton-seed was replaced by tallow. The strength of alkali ran all the way up the scale from 1° Tw. to 9° and back again to 3°. Hot water, cold water, soft water, ice-cold river water, water hardened with lime—all had their innings to no avail.

Black kerseys were a drug on the market, navy blue was in demand; the warehouse was full of shaded goods; and the super's life was not a happy one. The New York office was riding him hard.

On a memorable morning a friend of the superintendent wandered into the mill and waited until a noisy conference behind closed doors came to a close. As the contestants emerged, wearily and with drawn faces, the super noticed his friend and greeted him listlessly.

"Why, what's the matter, Jim?" asked the caller, "you don't act like yourself today."

"Come over to the perch and see."

At the perch the visitor took one look at the goods.

"How did you ever get into such a mess?"

"Don't ask me. I'm at the end of my rope."

"Mind if I look around?"

"Go ahead, and good luck to you."

As the visitor reached the dryer—it was a Heathcote upright—and climbed up to the platform where the boys were guiding the cloth on to the pins, a strange stillness struck him.

Turning to one of the boys, he inquired, "What's the matter with the fan?"

"Oh, it was too damn hot up here last summer, so we told one of the mechanics to take it out."

"Yes, and how long has it been out?"

"About four or five months."

"Ye Gods! A Heathcote upright without a fan."

Down he climbed and back to the super's office he went to report his findings—a Heathcote without a fan; all the hot air from the coils at the bottom of the dryer following the lines of least resistance up the sides, while the center remained cool and moist; fast, hot drying at the selvages; slow, cool drying in the center; the tannic acid developing in the extra heat, while the center dryed naturally.

Man, You're Crazy

After listening skeptically to his friend's report, the superintendent said, "Why man, you're crazy."

"Maybe so; but I can prove I'm right this time. You have a lot of good tenter bars out in the yard, let's take a piece from the lot you are now drying and dry it outside and see the result."

"Do anything you like. See the finisher and tell him to call me over to the perch when the piece is dry."

When the piece was brought in from the yard and pulled over the perch it was found to be perfect, while the other seven pieces dyed in the same set and dried in the fanless dryer were badly shaded.

The fan was back on duty next morning, and a five months' mystery was solved.

TEXTILE WORLD ANALYST

Production rate continues increase —Trends in textile securities

Textile Mill Activity: Activity in January, based on total consumption of raw material, was approximately 8% greater than that for January of last year. Although official statistics for February are not available at this writing, the indications are that the rate continued to increase over last year.

THE unsettling effect of the AAA decision upon manufacturing margins in cotton goods and cotton yarns was gradually arrested during February and these margins became comparatively stable. It will be noted in Table I that fluctuations during the last three weeks of the month were within narrow range so far as cloths were concerned—and in Table II that the yarn margins became more or less stable during the last two weeks of the month.

The cloth margins, however, are extremely unsatisfactory. Most of the ground gained during the improvement last August, September and October has been lost. Yarn margins, on the other hand, have retained part of their gain.

Contrast between the rising wool market and sinking cotton prices marked the month of February, as reflected in TEXTILE WORLD's price index numbers. Raw wool, tops, and yarns have climbed steadily since last April, and at the end of February there was no sign of any reaction. The lower cotton indices are to be expected, as February is the first month to be altogether without the processing tax.

TABLE I. CARDED FABRIC MARGIN

Date	Margin in cents	Date	Margin in cents
August, 1933....	21.4	May, 1935.....	16.0
October, 1933...	19.1	June, 1935.....	16.5
January, 1934...	18.4	July, 1935.....	15.2
April, 1934.....	17.6	August, 1935....	17.1
July, 1934.....	15.5	September, 1935	17.9
August, 1934....	16.6	October, 1935...	17.7
September, 1934.	18.6	November, 1935	16.4
October, 1934...	17.4	December, 1935	16.2
November, 1934.	15.8	January, 1936...	17.2
December, 1934.	16.2	February, 1936..	16.5
January, 1935...	16.2	Feb. 5.....	17.0
February, 1935..	16.0	Feb. 12.....	16.5
March, 1935....	15.9	Feb. 19.....	16.1
April, 1935.....	16.1	Feb. 26.....	16.3

TABLE II. CARDED YARN MARGIN

Date	Margin in cents	Date	Margin in cents
August, 1933.....	23.5	May, 1935.....	13.8
October, 1933...	20.0	June, 1935.....	14.5
January, 1934...	18.3	July, 1935.....	14.3
April, 1934.....	15.9	August, 1935....	15.3
July, 1934.....	14.7	September, 1935	15.4
August, 1934....	15.3	October, 1935	15.8
September, 1934.	15.6	November, 1935	16.3
October, 1934...	14.6	December, 1935	16.3
November, 1934.	13.5	January, 1936...	18.4
December, 1934.	13.5	February, 1936..	17.5
January, 1935...	13.5	Feb. 5.....	18.2
February, 1935..	13.9	Feb. 12.....	17.8
March, 1935....	14.4	Feb. 19.....	17.1
April, 1935.....	14.1	Feb. 26.....	16.9

Movement of Textile Shares

Reports from specialists in textile securities report an increased interest in those stocks during recent months. On this page are shown comparative price trends of representative shares. Tables III and IV show high and low in 1934 and 1935 for New Bedford and Fall River respectively. Table V shows last year's range for those textile securities quoted on the New York Stock Exchange. Chart I traces the average price trend of 25 southern mill stocks from 1925 through 1935.

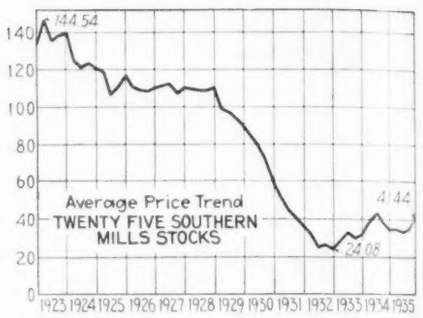


CHART I—*Average price trend of 25 southern mill stocks from 1923 through 1935 compiled by the stock trading department of R. S. Dickson & Co., Charlotte, N. C.*

TABLE III—NEW BEDFORD STOCKS

(Courtesy of Sanford & Kelley)

	1935 High	1935 Low	1934 High	1934 Low
Beacon Mfg. Co. Pfd.	68	59	66½	54
Booth Mfg. Co. Com.	1¼	1	5	4
Booth Mfg. Co. Pfd.	4	3½	15	14
Gosnold Mills Com.	11¼	4	18¼	5
Gosnold Mills Pfd.	30	18	60	15
Grinnell Mfg. Corp.	4¼	1	8½	2
Hathaway Mfg. Co.	45	32½	70	35
Kilburn Mill.	32½	20	45	15
Nashawena Mills.	4½	1½	17	3
Neild Mfg. Corp.	8½	5	18	6
Nonquitt Mills.	4¾	3½	5½	3
Pierce Mfg. Corp.	26	13	30	22½
Quissett Mills.	19½	15	31	12
Soule Mill.	20	16	46	20
Taber Mill Com.	No Sales		No Sales	
Taber Mill Pfd.	No Sales		No Sales	
Wamsutta Mills.	7	3	11¼	2½

TABLE IV—FALL RIVER STOCKS

(Courtesy of Sanford & Kelley)

Name of Corporation	1935 High	1935 Low	1934 High	1934 Low
Algonquin Printing Co.	160	120	...	...
Barnard Mfg. Co.	3	2	6½	4
Berkshire Fine Spg. Com.	4¼	1½	7⅛	2
Berkshire Fine Spg. Pfd.	31	18	44	21½
Border City Mfg. Co.	5½	2½	14	3¾
Bourne Mills.	26	20	42	32
Charlton Mills.	42½	28	62	45
Luther Mfg. Co.	37	25	52½	40
Narragansett Mills, Pfd.	...	...	...	...
Pilgrim Mills.	26	26	52	35
Richard Borden Mfg. Co.	4	2½	15	4
Sagamore Mfg. Co.	25	18	56	22

TABLE V—TEXTILE STOCKS ON N. Y. STOCK EXCHANGE

High and Low 1935

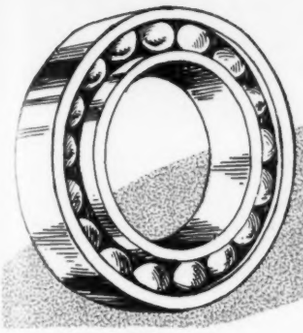
(Dividend in Dollars in parentheses)

	High	Low	Last	Net Change
Adams Millis(2)	37¼	28	34¼	+ 1¼
American Woolen	10⅜	4⅞	9⅜	+ ⅜
American Woolen, Pfd.	68¾	35½	62	+16
Artloom Corp.	9¼	3¾	8½	+ 4½
Artloom Corp., Pfd.	90	70	88¼	+18¼
Belding-Heminway(1)	14¾	11¼	13	+ ¾
Bigelow-Sanford	27½	14¾	24¼	+ ¼
Blumenthal, Pfd.	90	28½	90	+57
Botany Con. Mills, A.	2¾	⅛	1⅞	+ ⅛
Cannon Mills(2)	40½	30	40	+ 6½
Celanese Corp.	35⅜	19½	29	— 5½
Century Ribbon	12⅜	6½	8⅜	— 1½
Century Ribbon, Pfd(7)	109½	96¼	102¾	— 4¼
Collins & Aikman(50c)	50	9	47¼	+33¼
Collins & Aikman(7)	109	69½	109	+27½
Consol. Textile	1⅜	⅛	⅜	+ ⅛
Duplan Silk(1)	19	12¼	15	— 2¼
Duplan Silk, Pfd(8)	116	103	116	+ 9
Durham Hosiery, Pfd.	27½	12	26½	+ 5
Gotham Silk Hosiery	10½	2½	9½	+ 4½
Gotham Silk Hosiery, Pfd.	85	20	80	+30½
Indust. Rayon(1.68)	36⅜	23½	29⅞	— 1⅜
Kayser (J.) & Co. (1.15)	30	15⅞	28⅝	+11⅛
Kendall Co., Pfd. A(6)	96	84	88	— 1
Munsingwear(1)	26½	13¾	21½	+ 3½
Pacific Mills	21	12	15½	— 6¼
Phoenix Hosiery	10¼	3	9¼	+ 4¼
Phoenix Hosiery, Pfd.(3½)	78½	50	72½	+17½
Real Silk Hosiery	11	3½	10½	+ 3½
Real Silk Hosiery, Pfd.	72	20¼	72	+35½
Van Raalte (50c)	33	11¼	32⅜	+20⅛
Van Raalte 1st Pfd.(7)	114	91	110½	+20½

Textile World's Price Index Numbers

STARTING with January, 1936, TEXTILE WORLD has revised its price index numbers to a 1923-25 base, to correspond with current statistical practices. Those who wish to continue with indices based on July 1, 1914, for chart purposes or otherwise, can secure conversion factors to change the new figures to the old by writing TEXTILE WORLD, Statistical Dept., 1427 Statler Bldg., Boston, Mass. Figures on cotton manufactures, Aug. 1, 1933 to Jan. 6, 1936 include processing tax.

Date	Cotton Index Numbers: Cotton	Cotton: Yarns	Cotton: Gray	Cotton: Colored	Wool Index Numbers: Wool	Wool: Tops	Wool: Yarns	Wool: Cloth	Silk Index: Raw Silk
1923-25 average	100	100	100	100	100	100	100	100	100
1930 average...	50	61	61	72	58	61	72	90	109
1931 average...	32	58	46	59	46	49	59	71	32
1932 average...	24	37	37	60	36	40	52	57	21
1933 average...	39	56	55	50	53	59	62	80	21
1934 average...	61	67	70	62	63	70	75	91	17
1935 average...	60	68	67	69	56	58	70	88	22
July 1935.....	61	68	65	69	56	59	70	89	20
Aug. 1935.....	58	68	66	69	56	59	70	89	23
Sept. 1935.....	55	66	68	69	58	60	70	89	25
Oct. 1935.....	57	68	68	69	60	61	73	92	27
Nov. 1935.....	60	70	69	72	62	65	75	92	27
Dec. 1935.....	60	71	69	72	64	66	76	92	26
Jan. 1936.....	48	67	63	68	67	73	75	93	26
Feb. 1936.....	42	62	58	67	72	81	77	93	24



Eight factors to be considered in

LUBRICATING ANTI-FRICTION BEARINGS

By Allen F. Brewer
Mechanical Engineer, Texas Co.

◆ *Anti-friction bearings are applicable to virtually all types of textile equipment, a cursory survey of this field disclosing over 70 different uses already established. In about a third of these cases units designed specially for textile service are employed. The accompanying illustrations of actual mill installations show a few of the more common applications.*

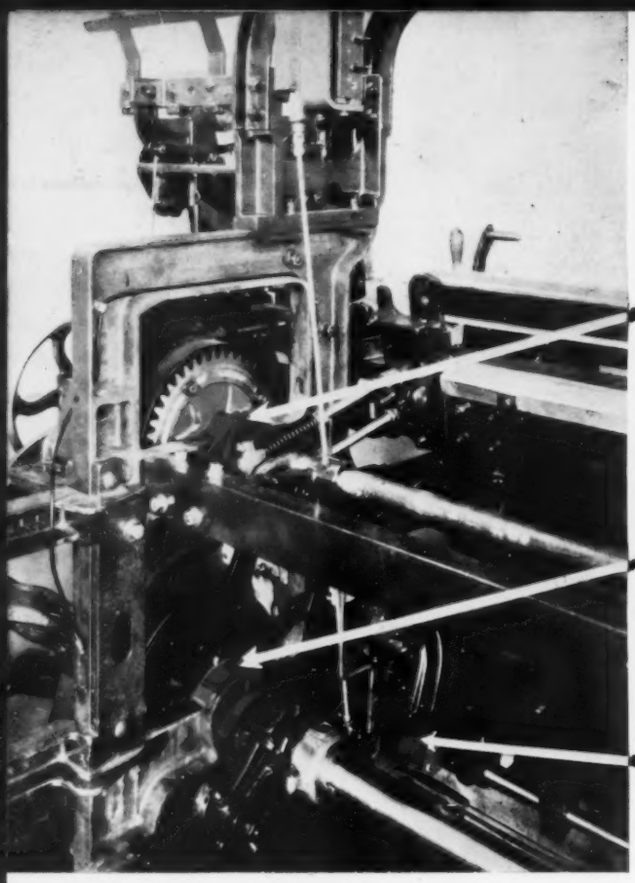
THE textile industry has been distinctive among the world's principal producers of materials for its progressive attitude in the study of improvements in machine design. Methods of automatic control to eliminate hazard to operators have always appealed to the designer; then followed investigation of manufacturing procedures to bring about greater uniformity in yarns and fabrics. Until comparatively recently, however, power consumption remained to be considered. Depression times awakens all concerned to this most important detail.

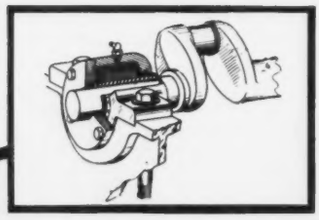
Power consumption in virtually any type of machine is a function of the flexibility of its moving parts and the freedom with which they rotate or slide with respect to one another. Since this requires motion with the least amount of solid or metallic friction, lubrication plays an important part. The many bearings which are used on the average textile machine present the possibility of considerable increase in power consumption if they are not positively and continuously lubricated. Therefore, with improvements in design of the ball and roller bearings and development of bearing seals which will effectively protect lubrication, it was natural for the bearing manufacturers to approach the builders of textile machinery and obvious that the latter should become thoroughly interested. The result of this cooperation in the interest of more economical plant operations has been one of the bright spots in the rehabilitation of the industry.

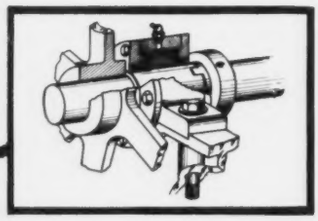
Anti-friction bearings on calender (SKF)

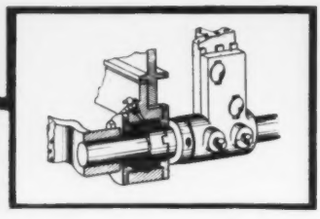
In considering this matter of power consumption, lubrication research has been directed towards the study of the torque characteristics of greases in particular, in view of the preference for this class of lubricants for anti-friction bearings in the textile industry. Some interesting facts have been developed in regard to the composition and manufacture of greases for such service, which have justified the use of most carefully selected soap stocks and a lubricating oil of light-medium viscosity. The relative body of the oil, however, will only partially affect the ultimate amount of torque or power consumption characteristic of a grease; the method of manufacture is of equal importance.

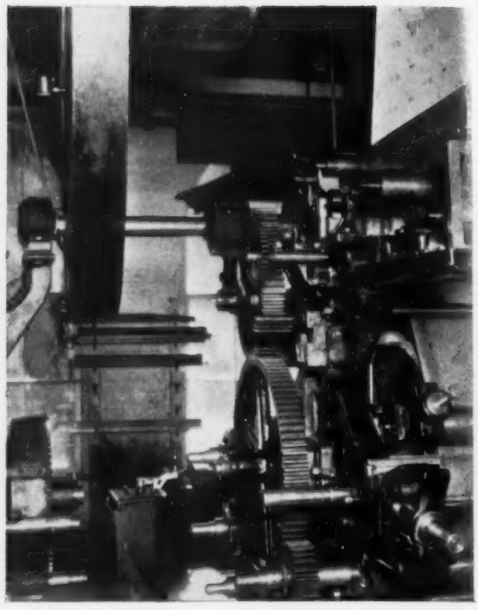
But once any lubricant has been put into service, one must remember that the amount used will also have a direct effect upon the internal friction or resistance to motion which will be developed within the bearing itself. As a general rule, no anti-friction bearing should be filled more than half full with grease. It is difficult, of course, to determine just where to stop re-lubrication, especially where bearings of different size are involved. Theoretically, one should determine the grease capacity of each type or size in conjunction with the manufacturer. With the limited means available for automatically measuring grease through most of the typical systems for pressure lubrication, even this information would be difficult to use. Some authorities have, therefore, felt it to the best interests of all concerned to stress the use of the pre-packed bearing containing adequate lubricant for several months' service. Others even prefer to do away with the pressure-gun fitting as a permanent part of the bearing housing, using pipe plugs instead, to prevent over-lubrication by careless operators. Under such conditions, it is well to adopt a regular lubrication schedule of, say, every six months, at that time observing the utmost care











Above—Anti-friction bearings on printing machine (Fafnir)

At left—Crankshaft, bottom shaft, and rocket shaft of loom fitted with roller bearings (Hyatt)

in flushing and re-lubricating them. It will be a more tedious procedure and perhaps will require supervision by a well-trained mill mechanic, but it will be excellent insurance against subsequent bearing failures, machine shut-downs, and replacement costs; it will also reduce the service expense of the bearing and equipment builder and eliminate an unfair burden which is often imposed upon the manufacturer of the lubricants used. Obviously, individual lubrication of any bearing according to its operating and construction conditions is, therefore, an excellent procedure, if it can be carried out economically.

In studying these conditions, one should investigate the following factors: (1) speed range, (2) operating temperature, (3) loads imposed, (4) size of the bearing, (5) detrimental effects of leakage, (6) type of bearing closure, (7) effectiveness of the seals, and (8) facilities for re-lubrication.

Temperature

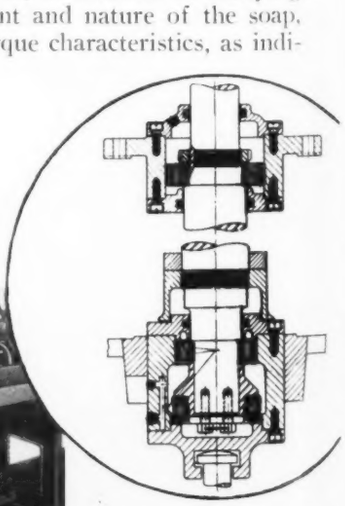
Under normal operation, there will be a certain rise in temperature in the average anti-friction bearing. Where conditions of ventilation are poor, or adjacent to heating elements—as on a dryer, obviously the running temperatures may be comparatively high. Inasmuch as viscosity or consistency of any lubricant varies inversely with temperature, one must consider this increase in fluidity in planning on the lubrication of virtually any textile bearings.

Lubrication with oil requires merely a consideration of the operating body or viscosity, commensurate with the starting torque. Usually a range of from 200 to 750 seconds, Saybolt Universal, at 100° F. will cover all normal operating conditions. Greases, however, require consideration of base, oil viscosity, torque, and stability. Usually, an oil of low to medium viscosity in a properly made grease will give adequate lubrication. It will also be conducive to low starting torque and minimum power consumption. Such an oil, however, must be most carefully blended with a type of soap which will impart high melting point to the resultant grease, with the least possibility of oil separation. A mixed-base product is preferable due to its stability and resistance to breakdown. Research on various types of breakdown machines have proved conclusively the advantage of correlating torque or power consumption with stability and resistance to oxidation, especially under higher operating temperatures.

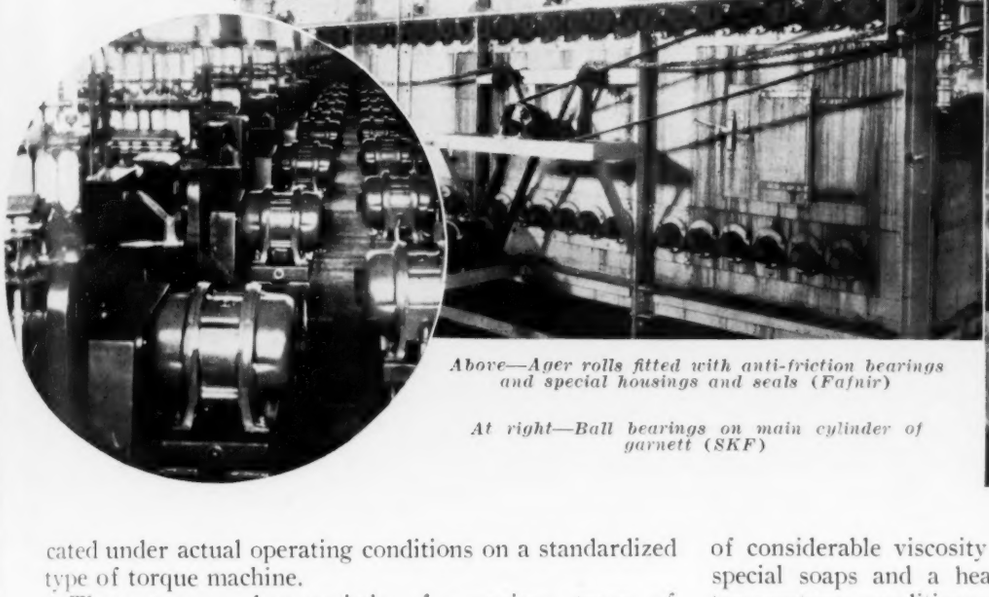
Speed

It is the opinion of many bearing authorities that, as speeds are increased, the viscosity or consistency of the lubricant should be reduced in the interest of reducing internal friction and possibility of excessive power consumption. Where design has been planned to enable retention of oil, selection of the proper viscosity according to speed conditions can be made according to the charts prepared by certain of the bearing manufacturers. In the case of grease, however, in addition to studying the viscosity of the oil content and nature of the soap, one should investigate the torque characteristics, as indi-

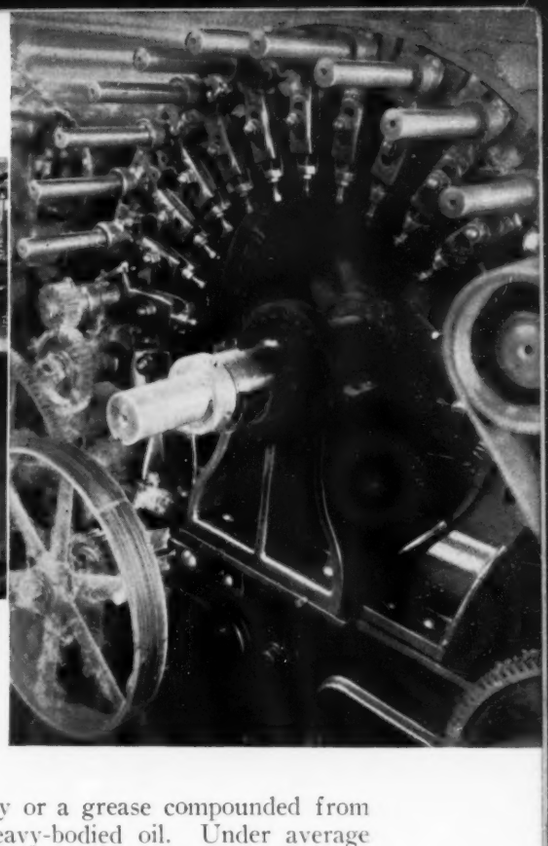
Below—Winding machine and motor equipped with grease-lubricated ball bearings (New Departure)



Above—Self-aligning and single-direction, self-aligning ball thrust bearings on vertical opener (Norma-Hoffman)



Below—Ball-bearing, screenless, squirrel-cage textile motors (New Departure)



Above—Ager rolls fitted with anti-friction bearings and special housings and seals (Fafnir)

At right—Ball bearings on main cylinder of garnett (SKF)

cated under actual operating conditions on a standardized type of torque machine.

These torque characteristics for various types of greases are very interesting. Some short-fiber products which would visually seem to be ideal will show a considerably higher torque than a grease of apparently heavier body. It is all a matter of judicious selection of ingredients and controlled manufacture, to obtain the proper increase in fluidity with moderate increase in temperature so that the starting torque will drop rapidly to a uniform running torque. Furthermore, any such grease should go back as nearly as possible to its original consistency with no tendency towards oil separation, which would lead to leakage.

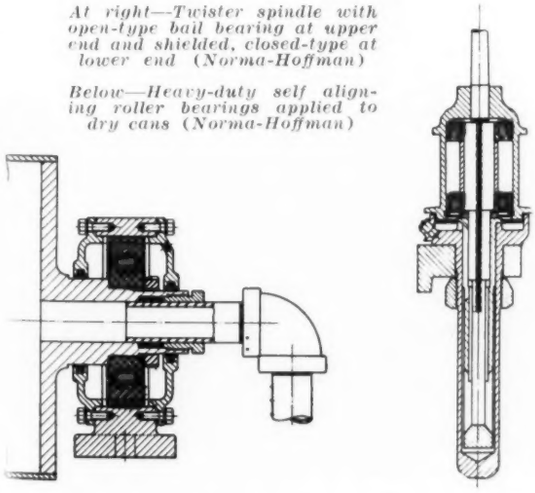
Load Conditions

While textile machinery will normally not present conditions of extreme load, some bearings will be subjected to sufficiently heavy duty to justify careful consideration of lubricants especially designed to meet these operations. In the anti-friction bearing, load or operating pressure must be studied along with temperature, speed, and bearing seals. Obviously, bearings subjected to considerable pressure, due to the weight or thrust of the moving parts, require a lubricant of sufficient body to resist actual rupture of the lubricating film. Normally, this means an oil of considerable viscosity or a grease compounded from special soaps and a heavy-bodied oil. Under average temperature conditions, any such lubricant will, of course, involve increase in torque or power consumption. Usually, however, the heavy-duty calender bearing will be subjected to somewhat higher operating temperatures than the bearings of a loom or average speed spinning frame; consequently, the body or viscosity of the lubricants used will be proportionately reduced in service. This, of course, must be considered when making original selection of such products.

On the other hand, the anti-friction bearing is always automatically renewing the lubricating film over its component parts as they rotate. When heavy-bodied lubricants are used, considerable drag and channeling, as indicated by high initial torque, must be expected when the machine is first started. Internal friction quickly reduces this drag through increase in temperature, however, to bring about uniformity in power consumption, all provided the lubricant was not too heavy in the beginning. Therefore one must be careful in considering other factors besides direct load or operating pressures, for it is quite easy to choose a lubricant entirely too heavy in body, and thereby affect costs and performance.

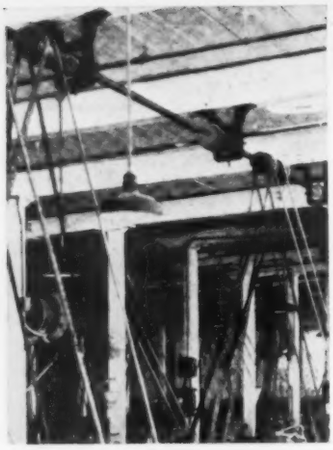
At right—Twister spindle with open-type ball bearing at upper end and shielded, closed-type at lower end (Norma-Hoffman)

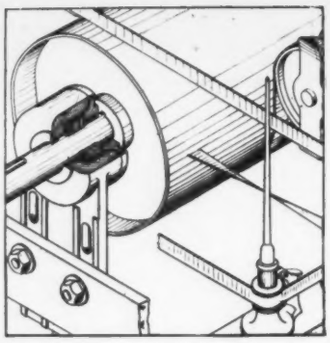
Below—Heavy-duty self aligning roller bearings applied to dry cans (Norma-Hoffman)



Bearing Size

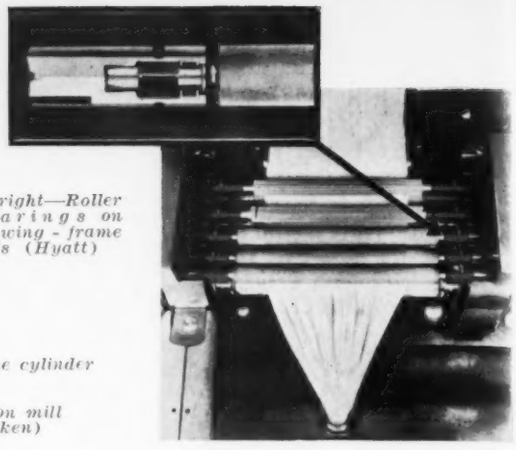
With increase in the size of bearings, there will be a corresponding decrease in speed on many types of textile machinery. This will usually call for increase in the body of the lubricant, especially as heavier load conditions may also prevail. Bearings of this type are used on calenders, dryers, and other types of comparatively heavy-duty but relatively slow-moving machinery. On any such bearing, the lubricant must be capable of training with or following the bearing elements. This obviously necessitates considerable body or viscosity. It must, however, never be so heavy as to channel, or so adhesive as to work out of the bearing seals; otherwise, lubrication and parts-protection may be seriously impaired. Furthermore, any lubricant for such service must be able to penetrate to all parts of the bearing, a provision often overlooked by operators in an overcautious desire to use a product of abnormal body or adhesiveness as a factor of safety in view of their load





Roller bearings on wool spinning-frame cylinder shaft (Hyatt)

At left—Lineshaft hangers in cotton mill equipped with ball bearings (Timken)



At right—Roller bearings on drawing-frame rolls (Hyatt)

conditions. A fair compromise in line with the bearing design will usually afford ample protection and material reduction in power consumption.

Leakage

Leakage, bearing closures, and sealing media are factors which are so intimately related as to require collective consideration. The primary purpose of proper bearing closure and the use of effective seals is to prevent loss of lubricant through leakage, and, by the same premise, entry of abrasive foreign matter which would score the bearing parts. This is highly important in textile operations for leakage, especially, would be a serious detriment on any type of service where the yarn or cloth might be stained.

Several types of bearing seals have been devised, many of which have been quite successfully applied to practical operation. Some of them are intricate, and hence may become a considerable item of additional expense when one may be planning on a ball- or roller-bearing installation. Wherever contamination of goods may be possible, or in an atmosphere of fly or dust, this initial expense will often more than offset probable future costs of damaged goods or bearing replacements.

The most practicable seal for a textile installation, considering the size and number of bearings usually required, and the necessity for low first cost, is the felt washer or grease-groove seal. In this design, a suitable groove is cut on either or both ends of the housing to carry a washer or a heavy plastic grease which forms a collar in contact with the shaft to prevent, not only loss of the lubricant, but also entry of foreign matter.

Seals of this nature were among the earlier devices adopted by anti-friction bearing builders for bearing protection. They have continued in popularity, due to their low cost and simplicity. More recently, however, a variety of other designs, including metallic rings, external slingers, and leather and cork collars held in close contact with the shaft by spring action, have come into favor.

Regardless of the type, any seal, to be effective and dependable, must show the least amount of wear in service; otherwise it will fail to perform its intended function. Seals of leather, cork, or fabric construction will, of course, always wear or glaze to some extent, depending upon the shaft speed and temperature fluctuations; normally, however, any such wear will take place very slowly if high-grade materials are used. The spring-actuated seal is advantageous in this regard as it compensates for wear, although its sealing media may wear more rapidly, due to the constant tension under which it functions.

The grease-groove seal is, therefore, often regarded very highly due to its ease of renewal, its flexibility, and the absence of actual wear. Some types of hard greases, however, will glaze after continued service and permit windage which may be the forerunner of entry of abrasive dust, or leakage of bearing lubricant. For this reason, sealing greases should be carefully studied. They should possess high melting point, be distinctly cohesive, contain no material which might be abrasive to the shaft surface, and should maintain their homogeneity with the least possibility of oil separation.

Facilities for Re-Lubrication

Anti-friction bearings are more frequently over-lubricated than under-lubricated, for many operators cannot seem to realize that their successful operation is in part based on but the minimum amount of lubrication. Normally, too much lubricant or too frequent lubrication will serve no purpose; in fact, it may often lead to overheating, especially where some types of grease are used, or to impairment of the bearing seals if an excess of grease is forced in with a pressure gun. Therefore re-lubrication must be practiced with considerable care.

The most usual means provided for re-lubrication will involve the pressure gun, unless the pre-packed type of bearing is used. This latter design is coming into decided favor, as it reduces the possibility of difficulty due to use of too much lubricant or the wrong grade. Pre-packed bearings normally carry enough lubricant at the start for several months' operation, requiring at least partial take-down for re-lubrication. At such a time, cleaning may also be advisable if the bearing has operated under dirty conditions.

Cleaning, or at least flushing, can be facilitated in any bearing provided with lubricator fittings for grease lubrication, or designed for oil lubrication, if drain plugs are located at the base. Removal of the latter at the time of cleaning enables draining or forcing out of used lubricant, and, in turn, provides an outlet for flushing oil. For this purpose, a light-viscosity product should be used; heating preparatory to flushing will facilitate removal of old grease. Proper cleaning is most important in the interest of bearing protection, and is a procedure which should be regularly carried out in accordance with builders' recommendations.

In turn, when renewing the lubricant in an oiled bearing, one should keep the oil level as nearly as possible at the center line of the lowermost ball or roller in the bearing. With grease, the majority of builders suggest filling the bearing not more than one-third full. Finally, if a comparatively low-viscosity oil is used, or a grease of recognized low-torque properties, capable of resisting oxidation and oil separation, the bearing should continue to function with minimum power consumption and positive protection of all the component parts.

ADVERTISING PAGES REMOVED

THE OVERSEERS' CORNER

Mixing in Politics

(By John Williams—Based on actual mill notes)

BY this time everyone knows that we are going to have one of those red-hot political campaigns that our fathers and grandfathers used to brag about, and it is only natural that there will be much discussing, and shouting, and all that, before we are through. Consequently, I wasn't surprised when my friend Ted Grimes, who is superintendent of the mill across the river, dropped in the other day and asked me what I was going to do to get the overseers and workers to vote what he called "right."

Ted told me that he is going to have regular meetings of the overseers, with outside speakers to tell them what is what in local and national politics. He expects the overseers to carry such messages back to the help. Ted pointed out that political officeholders both local and national, have a lot to say about whether the mill runs along steadily and profitably. Since the welfare of the workers depends on the welfare of the mill, he pointed out, he thought that it was only right to make sure that everybody connected with the organization, from top to bottom, should know what was what.

Ted's arguments sounded plausible enough, but, after thinking it over, I came to the conclusion that it would be better if my overseers and I, as mill officials, kept out of politics. Naturally, if anyone wants to be active as a private citizen, that is okay, but I think that mill officials, as such, do far more harm than good in following any such plan as Ted's. No matter how diplomatic you are, the overseers and workers will get the idea that they are being told how to vote. No one likes that, and a lot of dissension may be caused. Feelings are going to run high before this election is over, and I think the wise thing to do is not to get the mill organization tangled up in such a potentially trouble-making activity.

Night School

Editor, Overseers' Corner:

I have been going to night school for twenty years. Mr. Williams, in his December statement, has presented a splendid opportunity for those versed in certain phases of manufacture to render valuable and unselfish service to their associates and at the same time to increase their own working knowledge of the subject at hand.

I recall that, about four years ago, I took a special course at a well-known university on the use of the microscope in textile work. Immediately a dozen younger men in the plant wanted to know about it. So we set aside one evening a week from five o'clock until seven for practice with the microscope and discussion. Each one brought his supper and we ate together—picnic style—when the plant closed at five o'clock. By meeting early the evening was still free for any social engagements. The good fellowship and informality of these meetings have meant fully as much to us (and to the plant through our better acquaintance) as did the instruction and shared experience. This is a splendid plan for the larger plants as well as the small isolated ones. H.D.G.

The Overseer and Second Hands

Editor, Overseers' Corner:

We, the overseers, should have more consideration for our second hands or assistants. We should cooperate with them 100% as far as work is concerned, but I know from experience that 50% of the overseers do not do this. I remember that when I was a second hand my overseer often hired a new man and put him to work without telling me or introducing him to me. The newcomer sometimes was on the job three or four hours before my superior came to tell me.

A few days ago an old friend of mine, who is a second hand in another department, was talking with me, and I noticed that he looked troubled. I asked him if he was sick and he answered. "No, but I only wish that my trouble was sickness, as I probably would be better off than working for an overseer who has no consideration for his second hands."

Let us all check up and see what our attitude is towards our second hands.

J.C.

Filing Technical Material

Editor, Overseers' Corner:

I do not know what most subscribers do with their copies of TEXTILE WORLD, nor what use they make of the information contained therein. It is certain that they cannot keep in their minds all they read in our trade magazine, and I am sure that many of them have often wished they could put their hands on some half-forgotten item that dealt with a problem that has arisen to confront them. Some, perhaps, save all their back numbers, but what a task it must be to hunt through all those pages for a few inches of reading matter.

In the comparatively few years that I have been a subscriber, I have culled from its pages an authoritative, comprehensive, and practically complete textile course, which has aided my practical experience to a great extent. This I have systematically accomplished by cutting from the magazine every item that has any bearing on silk or rayon. These I separate into the various branches of the industry, and paste into scrapbooks—one scrapbok for each branch. I now have a fund of information on each of the following subjects, and each easily accessible:

1. Business administration and foremanship.
2. Testing, analysis, textile chemistry, etc.
3. Weave construction and new fabrics.
4. Soaking, winding, and quilling.
5. Sizing, warping, and weaving.
6. Loom fixing.
7. Rayon manufacture.
8. Miscellaneous.

Other readers in other branches of the textile industry will naturally need other subdivisions, but the idea remains the same and will prove helpful to all.

W. F. PARRY

Example for the Worker

Editor, Overseers' Corner:

The mill can be a happy place for the employee, and for the employer also if he sets an example for the worker. Many overseers pass the workers as though they were so many numbers. This can be the birth of ill feeling between employer and employee.

I think that if an overseer smiles and says "good morning," this gives the worker a feeling that he is a vital part of the organization. This way you get better spirit and more work out of your labor. Suggestions made by workers should be answered as soon as possible, and workers should not be ridiculed by

CONTRIBUTIONS

Contributions to "The Overseers' Corner" will be paid for without regard to length. We will be glad to use letters discussing the narrative on page 101 or any other pertinent matter whether of mechanical, managerial or just plain human interest. Those who contribute kinks or practical helps will be paid additional for an appropriate sketch to illustrate their device. It is not necessary to submit finished drawings. If these pages interest you—contribute something to them to interest others. Address Editor, Overseers' Corner, Textile World, 330 West 42d St., New York, N. Y.

saying or doing anything to hurt their feelings. To get the best out of a worker, you should have him believe that his work is important.

In Webster, Mass., an overseer had new lockers installed for all the workers, and it pleased them more than if they had received a raise, as it showed them that the overseer was thinking of their welfare.

FRANK SZYNAL.

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Employer-Employee Relations

Editor, Overseers' Corner:

In regard to problems mentioned by the super in the January issue, it seems to me that the executive was a sinner by omission as well as commission. In the first place, I might question his judgment in making promises of a positive or definite nature under the circumstances noted; but once he had made such a definite promise, and the time had come when he would make a readjustment, he should certainly see that the order was carried out correctly.

The manager or superintendent can reap a good harvest by trying to cooperate with his subordinates. Be more explicit in your instructions and try to give the subordinate your slant. If he finds out you don't mind going into a huddle with him, so to speak, and he knows just exactly what you want, then you can rest assured he will work overtime to accomplish what you desire. And so it is all the way down the line.

Problem number two is almost a repetition of number one, in that it shows bad judgment by the rate man, who was the superintendent. A man in his capacity, or any other executive position, should strive more today than ever to use careful and sound judgment, not only in work of this nature but in any executive or business endeavor. In the first place, labor unrest may be prevalent at the best, and, in the second place, competition is too keen today to manage business in a haphazard style and without careful thinking.

For certain routine work you should have a flat rate for a beginner. If, after starting the new man at this rate, you find he is worth more, then put him on up if you feel disposed to do so, even if it is above the old hand, but do it in a systematic way. In other words, use a little tact. There is no need to stumble around in a haphazard way and invite dissension and ill feeling.

J. P. EVANS.

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Reserve and Courtesy

Editor, Overseers' Corner:

There are two words which may be applied to the attitude of an overseer toward his workers which set forth the ideal. Those words are "reserve" and "courtesy." It is entirely possible for the overseer to be reserved, yet be the very soul of courtesy. In every possible case, both overseer and workers should be brought to a basis of understanding which implies their common meeting-ground to be the work in hand, and that alone. If the overseer can so deport himself as to maintain such a basis of understanding unbroken from day to day, the proper foundation for right relations has been laid.

Theoretically, there should be but one way to penetrate the reserve of the overseer, or of anyone else in a supervisory position, during working hours. That way is a discussion of the work in hand, with reference to its betterment or its more efficient execution in any way, shape or form. Here the greatest freedom may be allowed, not only with impunity as to its effect on employee morale, but in the great majority of cases with definite advantage to that morale and to the mechanical side of production.

Approaching the problem from this direction has the advantage of reducing it to a very simple program to which any operator cannot object, and to which any overseer can readily adhere. It tends to keep the mind of both overseer and his workers on the work, where attention properly belongs. It erects a barrier against any employee of the favor-seeking type, and leaves the way always open for the overseer to correct, to restrain, or to instruct.

Unhappily, there is much truth in the old proverb that familiarity breeds contempt, and for that reason no supervisor must become too free and chummy with his help for the best results. There is a fine line here which is readily discernible to the man with tact. That line allows of a certain amount of letting up on the reserve mentioned outside of working hours, but even there the letup should be limited. But in all cases remember that the reserve must be fully counterbalanced with courtesy, in order to have the proper effect.

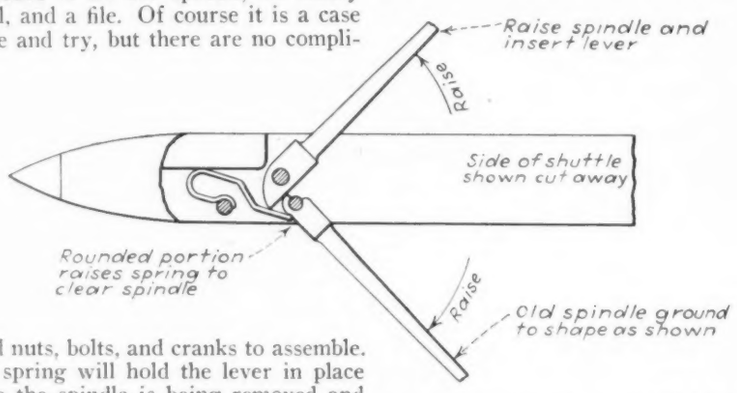
JOHN E. HYLER

Practical Helps for Overseers

Removing Spindles From Shuttles

The sketch shows a device for removing spindles from shuttles. All that is needed is an old spindle, an emery wheel, and a file. Of course it is a case of file and try, but there are no complicated nuts, bolts, and cranks to assemble. The spring will hold the lever in place while the spindle is being removed and replaced.

C. H. CALLAHAN


Raise spindle and insert lever
Raise
Side of shuttle shown cut away
Rounded portion raises spring to clear spindle
Raise
Old spindle ground to shape as shown

Checking pH by Titration Method

A mill which was not equipped with pH apparatus for determining alkalinity of the boil-off liquor when using a degumming compound furnished this problem: Was there a drop in pH, and how much of a drop, when using 4 and 8% of the compound on the weight of the silk?

Tests were made using 4 and 8% of the compound on white (not yellow) silk skeins. A 0.05 Normal acid solution was used, each c.c. of which equaled 0.002 grams of caustic soda, which was used as the standard alkali. Phenolphthalein was used as indicator. As a basis of comparison 10 c.c. portions of the degumming solution were taken for titration before adding the silk. Then 10 c.c. samples of the boil-off liquor were taken after one-half hour, and after one hour, and titrated. Equivalent amounts of caustic soda were calculated

by multiplying the c.c. of acid used by 0.002 grams of caustic soda. The percentage drop per 10 cc.. was easily figured. By using above method, the drop in alkalinity can be quite readily determined by any person familiar with use of standard solutions and burettes.

A. H. GRIMSHAW

Short Cuts to Efficiency at Lanett

The supervisory and technical staff of Lanett (Ala.) Mill, West Point Mfg. Co., West Point, Ga., has developed in the mill shops many ingenious devices designed to increase efficiency and produce better goods at lower costs. The following developments, of interest to every progressive superintendent and overseer, were noted by one of the editors of TEXTILE WORLD during a recent field trip:

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A "mail sack" pouch, made of No. 6 duck, manufactured at Shawmut Mill, has been perfected to keep filling clean. The sack, of square construction with a reinforced flat bottom, fits snugly into a doff box, the top of the sack being held open by steel hooks at each corner of the box. Full quills are doffed directly into the sack, which is large enough to hold filling from both sides of the frame. When the pouch is full, the top is closed by means of a light rope drawstring running through metal eyelets, and fastened by means of a metal holder operating on the principle of the slide buckle on men's belts. Full sacks are placed in a filling storage room and marked to identify the yarn contained. Over 2,000 of these sacks are now in use, and the number probably will be increased to 4,000.

• • •

Reels have been developed which will strip quills almost 100% clean, a box at a time. The device consists of a wooden reel, 5 ft. in diameter, revolving at about 15 r.p.m. The operator simply hooks a bunch of loose threads on the apparatus, which automatically pulls most of the remaining thread off the quills. A few quills which cling to the reel are picked off by hand. The result is that quills going to the strippers, being practically clean, are more easily handled.

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Roving is kept off the floor by packing it neatly in bins resembling large bookcases. A light-weight curtain over the front of the shelves keeps out dust.

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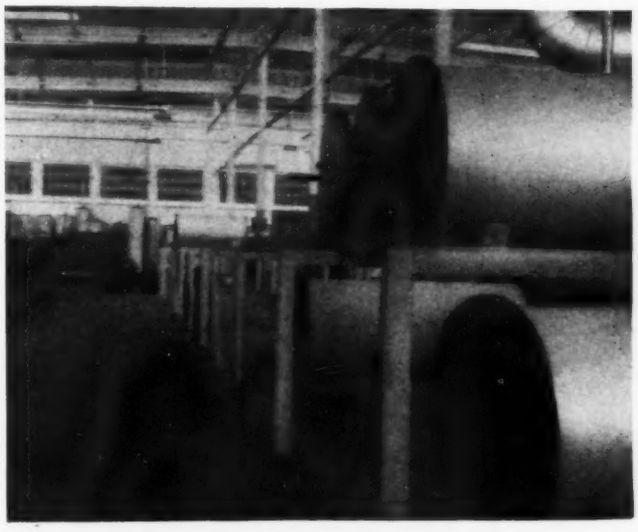
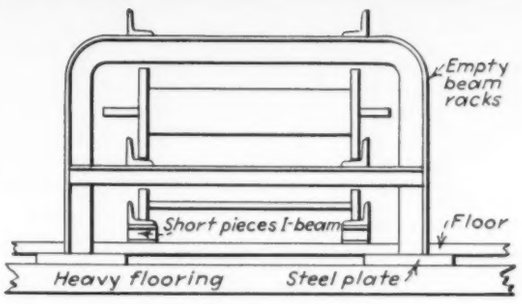
A two-tier metal rack (see illustration) has been built in the slasher room, on which beams are stored until ready for use. These racks, constructed as shown in the accompanying illustration, are built so that beams may be rolled on them to any point in the room back of the slashers. From there, an overhead monorail conveyor moves them to the slasher creels. In order to conserve floor space, one slasher has been equipped with a third tier of creel supports for beams. This means that one-third more beams can be handled in the same amount of floor space. Incidentally, all beam creels have been fitted with ball bearings.





A two-tier metal rack for storing beams in slasher room—in diagram and in use.

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In the weave shed, new lighting has been installed, increasing the foot-candles about 300%. Allowance was made for further increase when the need arises. Switches have been installed at convenient points in the weave room, each controlling seven lights. This means that now a few square feet of floor space only can be illuminated when desired. Formerly, in order to light one loom, one-sixth of the entire weave shed had to be illuminated.

• • •

Special ventilating equipment has been built for the spinning room. This consists essentially of eight fans, each with a capacity of 12,000 cu.ft. per min., pulling in outside air and distributing it through short ducts into the room. At each outlet, an atomizer head introduces moisture into the incoming air. Controls on the atomizers, as well as high-duty heads, are adjusted to keep a balance between the relative humidity and temperature—in order to keep the humidity within working limits. Exhaust openings, located at ten different points in the walls, are equipped with dampers designed to close when the outside wind pressure is too great. Each fan is equipped with a damper, controlled by thermostats in the room, and so arranged that when the outside temperature falls, less outside air is introduced, and conditioned inside air is recirculated.

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In the plant engineer's office, there is a large-scale map of the mill properties, showing the location of all buildings. Every time an improvement or repair is made, it is noted on the map, along with the date of the work. In this way, it is an easy matter to keep a comparative check on each job over an indefinite period.

Cleaning Machinery

For cleaning motors and textile machinery of all kinds, the writer prefers to use an ordinary domestic vacuum cleaner, rather than blow the dust out with compressed air. A vacuum cleaner draws out the dust from cracks and inaccessible places, and the dust is drawn into the cleaner and not blown into the atmosphere. Where compressed air is used, the dust may be blown into bearings or other places where it would cause damage. With suction cleaning, there is no need to cover the bearings,

etc., or to go over the machine afterwards to remove the dirt that has been blown out. The ordinary domestic vacuum cleaner works satisfactorily and should be equipped with nozzles so that all places can be reached. W.E.W.

Questions and Answers

Spots on Wool Goods

Technical Editor:
Please note spots on woolen fabric inclosed herewith. Kindly advise the cause of these spots. (8280)

It is difficult to determine the cause of the spots without knowing the history of the fabric. It appears to us that the spot was caused by a lump of undissolved dye coming in contact with the fabric. It is possible, however, that the spot was caused by acid coming in contact with the dyed fabric. A somewhat similar discoloration occurs when nitric acid is dropped on an indigo-dyed sample. Nitric acid turns this piece somewhat yellow, but not quite as green as the original spot; therefore, if it is a spot that was caused by acid, the piece has been washed or an attempt has been made to redye it to cover up the nitric acid stain.

Skip Dents in Mock Leno

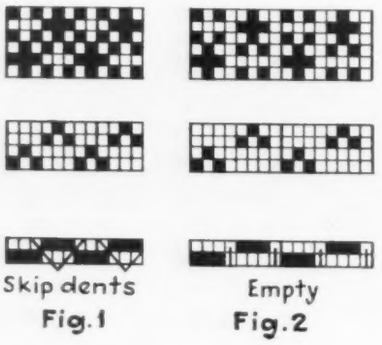
Technical Editor:
Please advise me what is meant by "skip dents" in Figs. 12 and 13, on page 59, TEXTILE WORLD, for October, 1932. (8295)

We have referred your inquiry to Professor T. R. Hart, author of the article in question, who replies as follows:

"As stated in the first part of the article referred to, the threads in mock-leno weaves run in groups and, as the outside ends of one group weave directly opposite to outside threads in the adjoining group, a break is made between the groups. In order to accentuate this 'break' or open space between each group, it is customary to draw one group of ends in a dent of the reed, leave the next dent empty, and then draw the next group in the following dent.

"Suppose a three-and-three mock-leno warp is to be made with a reed having 32 dents per inch and that the ends are to be reeded three in a dent, skip a dent throughout the warp. Then it can be seen that every other dent in the reed is left empty. Consequently, only 16 of the 32 dents in each inch are actually used; but by leaving an empty dent between each group of ends, a much better open effect is obtained than would be the case if a reed containing 16 dents per inch were used. Yet the construction of the fabric would be the same, for in each case the ends would be spaced 48 to the inch in the reed.

"Two methods are used by writers of textile-designing articles to indicate open dents in a reed. In Fig. 1 I have shown the design, drawing-in draft, and reed plan for a three-and-three mock leno. The diagonal lines are used to indicate that there is to be an empty dent between each group of ends. In Fig. 2 it will be seen that a line has been left between each group of ends in the design, drawing-in draft, and reed plan, and the number of dents to be skipped has been indicated in the empty space at the reed plan. This method is probably better, but it makes the design occupy more space. In this method if two dents were to be left empty between each group of ends, a '2' would be substituted for the '1' in the reed plan."



Yarns for Blankets

Technical Editor:
In weaving woolen blankets, what size of yarn should be used if a blanket 60x83 in. is to weigh 5 lb. after weaving? (8293)

The size of blanket you specify is rather unusual and would naturally be termed an odd size. In order to get 5 lb. finished weight it will be necessary to use a fairly heavy yarn and a rather firm construction. The construction, of course, will undergo considerable changes during the finishing processes. For instance, after fulling and scouring, the wet napping will lengthen the blanket somewhat and at the same time impart a much looser and more pliable and fluffy handle—so essential to blanket cloths.

Assuming that the finished size, and not the woven size, is to be 60 x 83 in., the following construction details should give good results: 7½ reed, two in dent, 78 in. wide, 1170 ends, 22 picks, using ¾-run woolen blend in warp and filling; weave, 2/2 twill or 3/3 twill. The loom weight would approximate 40 oz. per yard or 6 lb. 6 oz. for 78 x 87 area. Allowing one-fifth loss for grease, oil, dirt, etc., the clean weight per yard equals 32 oz., or a 5-lb. blanket measuring 60 x 83 in. finished.

On the assumption that this blanket is to finish 60 x 83, then a finished length shrinkage of 3.4% automatically suggests itself, as in every 87 in. of length a shrinkage of 4 in. is necessary to obtain 83 in. finished; and by simple proportion the afore-mentioned shrinkage figure is obtained.

It is now necessary to consider the fulling shrinkage. It need hardly be pointed out that a certain amount of stretch is obtained in both the scouring and napping operations, each of whch varies according to stock used, type of machinery, method of operation, and ingredients employed. However, on the basis of an average figure, you can safely full this blanket construction 6 in. per blanket—i.e., every 87 in. (6.9%)—and full to 62 in. wide. This allows for a stretch in scouring and napping of 3.5%; but if the stretch should be found to be greater, the fulling shrinkage will need to be increased proportionately.

Each blanket will be woven 87 in. long, and the loom width should be about 70 in. The 3/3 twill weave would be a better weaving job than the 2/2 twill. Although the latter is possible, it is too near the maximum in setting to be recommended. Moreover, a fuller handle would be obtained by using the 3/3 twill.

Modified Plain Stitch

Technical Editor:
What is the type of stitch on the inclosed swatch? Is it circular knit? (8274)

This fabric contains a special form of plain stitch. Without question it was knit on a circular machine. Very definitely, it is not a warp-knit fabric.

Each odd-numbered feed on the machine (1, 3, 5, etc.) knits on the odd-numbered needles. Each even-numbered feed (2, 4, 6, etc.) knits on the even-numbered needles. This is something like the Rubenstein stitch, which was fully described in the Dec. 13, 1930, issue of TEXTILE WORLD. It is also like the "gas-mantle stitch"; but the latter uses a tuck stitch on every other needle, while this sample has no stitch at all on every other needle at each feed. Of course, on the next feed the needles which have been idle knit, and the others are idle.

Knit-Pattern Fields

Technical Editor:
Following is a list showing the number of needles in our machines [the list is combined with the information requested, in the answer]. We have equipped several of them with pattern wheels that give us a 20 x 20 pattern wheel on a 4-feed basis.

Our problem is to get the same, or somewhat near the same, pattern field as in the samples. A field such as 18 x 20 to 24 x 20 will be all right. If you find that you cannot maintain one within those limits, please give us the best possible field you can find. We can use a wheel anywhere from 84 to 125 cuts. (8273)

Following is a list of pattern wheels and pattern fields corresponding to the number of needles in each cylinder:

14-Cut Cylinder (In.)	Needles	Wheel	Pattern Field Wide-High
11	480	100	20 x 20
12	528	110	22 x 20
13	570	120 or	30 x 16
		90	30 x 12
14	612	90	18 x 20
15	660	90	30 x 12
16	708	120	12 x 40
17	747	108	9 x 48
18	792	90 or	18 x 20
		96	24 x 16
19	840	96	24 x 16
20	880	100	20 x 20
21	924	112	28 x 16
22	972	90	18 x 20
23	1008	90	18 x 20
12-Cut Cylinder			
12	450	108	18 x 20
14	528	110	22 x 20
15	564	96	12 x 32
16	603	99	9 x 44
17	639	90	9 x 40
18	680	100	20 x 20
19	711	90	9 x 40
20	756	105	21 x 20
21	792	90 or	18 x 20
		96	24 x 16

In some instances the number of needles is very poor for obtaining a good design

area with the limitations involved. For example, the 17-in. cylinder with 747 needles can be divided only by 3, 9, and 83, the latter being a prime number. In other words, the width of pattern is limited to 3, 9, or 83 needles. As 83 is not divisible and 3 is too narrow, 9 is left as really the only number practical. Even this gives a narrow and long pattern, rather than the desired effect of 20x20 or thereabouts.

Underwear Uneven

Technical Editor:
We should like your opinion regarding the inclosed swatches of underwear fabric, which you will notice have imperfections, the cause of which we are unable to discover. (8271)

We first examined the piece of fabric knit with 20/1 C.P. in three feeds and with two ends running together in a fourth feed. The two ends are a merino 50% wool and 50% cotton and an end of 150-denier rayon. The rayon and merino end on every fourth feed produces the stripe. The most pronounced imperfection is next to one of the rayon stripes. Since the following section of three feeds of 20/1 C.P. does not have such pronounced spots, it appears that the cloth was knit on an eight-feed machine. Therefore, only one bobbin of the 20/1 C.P. yarn is imperfect.

The piece has been unraveled and the ends placed on a dark background (see below). The first end, *A*, at the top of the card is a sample of a particularly bad end, having both fine and thick spots at regular intervals. At No. 1 on the card are placed the ends of rayon and merino yarns which knit together at one feed. At No. 2 is shown the end which comes next and which has the fine and thick spots. Yarn No. 2 appears twice, as the end has been looped back to show more of it. Yarns Nos. 3 and 4 are the other two ends of the 20/1 C.P. yarn. No. 5 is the rayon and merino striping yarns from the fifth feed. The cotton end next to this, No. 6, is quite even, as are also the next two, Nos. 7 and 8. No. 8 completes the round of the machine of eight feeds on which the sample was knit.

On the card we now find the yarns from the first feed again; that is, the two ends which knit together. Next comes the uneven yarn No. 2. This time we have looped end No. 2 back twice, thus showing it three times on the card. No. 3 is now not altogether even, but has the same tendency toward fine spots as the No. 2. No. 4 also is not by any means so perfect. It is evident upon examination of the fabric, however, that the one bobbin or end of yarn every eight feeds apart shows regular fine spots to a greater extent than do any of the others.

Since the thin places (and also the thick places) occur at regular intervals of slightly over 3 in., it appears that the drafting rolls of the spinning frame are at fault, and we recommend that the frames be examined carefully with this point in mind.

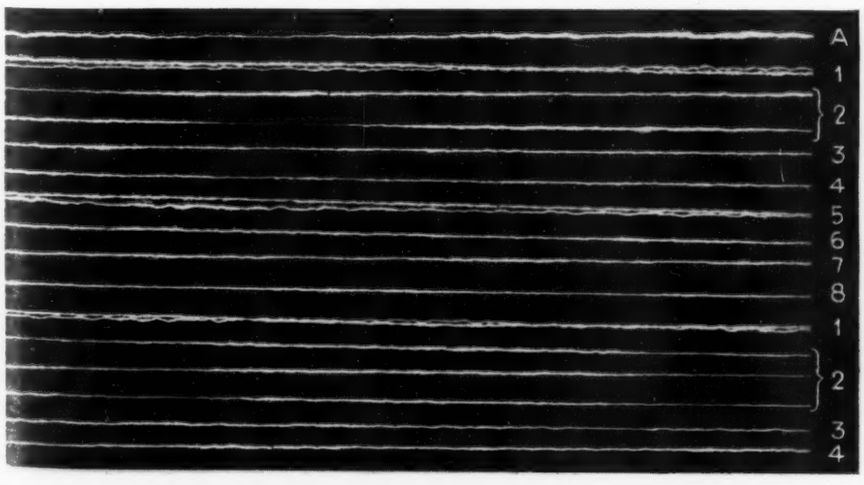
A cursory examination of the other sample submitted is sufficient to show that the defect is the same.

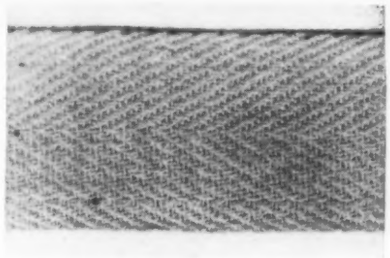
Uneven Shades on Hosiery

Technical Editor:
We inclose herewith a sample hose. You will note that the stocking has two completely different shades, which we believe might be due to different cones being used when it was manufactured. The stocking also has some stripes which might be due to improper dyeing. We shall appreciate your advice as to how this hosiery should be dyed. (8285)

It is probable that the two completely different shades are due, as you suggest, to the use of different cones of yarn. The zebra stripes reappear upon stripping and redyeing the goods, leading us to believe that this trouble is traceable to unevenly mercerized yarn. The dyer cannot prevent zebra stripes, but proper handling of the goods and use of level-dyeing dyes will make them somewhat less noticeable.

Mercerized hosiery should be given 10- to 15-min. boil-out with 2 to 3% of a penetrating agent. After the goods have been boiled-out, the bath is dropped and a fresh bath is made up at 110° F. The dye is entered into the machine, 2 to 3% of a penetrant is added, and the goods are allowed to run in this warm dyebath for 8 to 10 min. Next the steam valve is cracked and the dyebath brought to a boil, taking at least 12 to 15 min. to do this. The goods are boiled for at least 20 min. before salting. It is advisable to use dyes which will exhaust without salt, especially on light shades. Of course, on heavy shades—such as gunmetal, cordovan, black, etc.—salt will have to be used.





Cotton Tape Curls

Technical Editor:
I am inclosing herewith a sample of No. 581, 1-in., unbleached, cotton twill tape. You will observe that with very little handling, this tape has a tendency to roll or curl. This is a very objectional feature, which is causing loss of business. The trade to which we sell this tape cuts it into 12-in. lengths, and it is then sewed on to deck mops with a double-needle machine, but the curling feature slows production. What causes this tape to curl, and what remedy would you suggest in weaving to overcome this fault? The use of sizing would make the cost prohibitive. (8299)

The only positive and fool-proof remedy for this condition is to introduce throughout the warp a number of reverse-twist threads. The required number of reverse-twist ends can be determined only by experimentation, as so many factors enter into the problem; for instance, the twist of the filling yarn, the number of turns in the doubling of the two-ply warp, and the number of turns in the warp yarn before it was doubled or plied. We recommend for a start a three-and-one combination across the warp; i.e., three ends regular, one end reverse. This order need not necessarily be strictly adhered to. Other combinations may be 5 and 3, 8 and 5, etc.

You might also experiment with a reverse-twist single filling, or a regular two-ply filling.

Cleaning and Dressing Oil-Soaked Floors

Technical Editor:
Can you advise us of a solvent or cleanser that can be used on the wood flooring between our knitting machines, which is saturated with oil, making walking thereon very dangerous? We have tried different cleaners, which seemed to take the top layer of grease off the floor, but we are anxious to know whether or not something can be done to the floors to eliminate this dangerous slipperiness caused by saturation. Any advice which you can give us will be greatly appreciated. (8284)

One material which has been used successfully for dressing wood flooring between knitting machines is pine oil. The floor should first be cleaned with one of the cleaners which you have found satisfactory for removing the top layer of grease. Then, after the floor is dry, apply the pine oil liberally, in sufficient quantities to impregnate the wood thoroughly. The pine oil application should be made preferably on week-ends or holidays, when sufficient time for complete absorption may be had. The oil should be applied freely, sufficient being used to make a heavy film over the entire floor area. After 24 hours, any small places where absorption of the oil has not been complete should be wiped

up with waste and the whole floor area scrubbed with clean, dry waste. Floors treated in this way are very resistant to mineral oil, such as is used on the knitting machines, making it easy for the mineral oil to be wiped from the floor and at the same time preventing the slippery, oil-saturated floors referred to in the inquiry.

Personal News

Gerard Chapin has been made assistant general superintendent of the Lyman S. C. plant of **Pacific Mills.**

W. B. Williams, Clemson Textile School graduate of 1925, has resigned as assistant professor of weaving at Clemson in order to become assistant superintendent of Calhoun Mills, Calhoun Falls, S. C. **M. R. Cranford,** Clemson graduate of 1933, succeeded Mr. Williams.

E. M. Devine, formerly of Howell Mill, Cherryville, N. C., is now night superintendent of Dover Mill, Shelby, N. C.

A. E. Thompson, formerly of Buffalo, S. C., is now overseer of the carding and spinning departments of Santee Mills, Bamberg, S. C., plant. **S. C. Farr** is now overseer of the weaving department of the same mills, having returned to a position he formerly held.

E. D. Bagwell, formerly of Henrietta, N. C., is now overseer of weaving at Lois Mills, Douglasville, Ga.

W. L. Horner, formerly head of designing department of Burlington (N. C.) Mills, has been appointed overseer of the mills' jacquard weaving, and **R. D. Frissel,** formerly of Waldensian Weavers, Valdese, N. C., has been put in charge of the designing.

Roy Howell, overseer of the cloth departments of Fort Mill, S. C., plants Nos. 1 and 2 of Springs Cotton Mills, has resigned.

G. C. Jones, has been appointed overseer of the dyeing department of Hillside Cotton Mills, LaGrange, Ga.

Walter Tobin has resigned as overseer of dyeing of Atlantic Mills, Stottville, N. Y.

Eugene Roux has accepted a position as rayon piece dyer for Goodimate Co., Philadelphia.

James A. MacDonald, superintendent, **Frank Sugden** and **Harold Jackson,** assistant superintendents, and **Patrick Mahoney,** overseer, were among the speakers at the annual dinner of the Arlington Mill Woolsorters Association, Arlington Mills, Lawrence, Mass.

F. Owens, formerly overseer of dyeing at Palmer Mills, Three Rivers, Mass., is now with Glenlyon Yarn Dye Works, Phillipsdale, R. I.

W. C. Jordan, formerly overseer of spinning at Oconee Textiles, Inc., Westminster, S. C., is now associated with the Norris Cotton Mills, Cateechee, S. C., in a similar capacity.

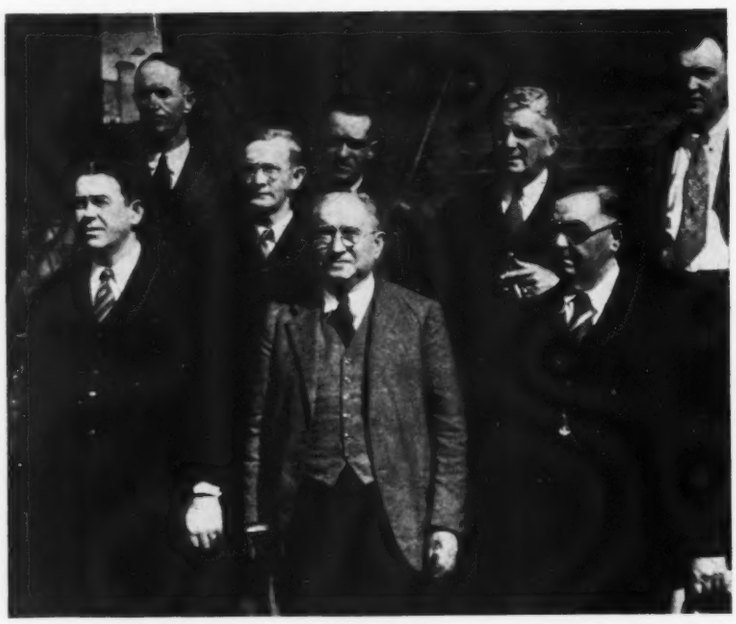
Bernard Heller has resigned as office manager of Puritan weaving plant of Burlington Mills, Fayettville, N. C.

I. C. Walters, formerly night overseer of weaving, Bama Cotton Mills, Enterprise, Ala., is now day overseer of weaving at Opp (Ala.) Cotton Mills.

D. A. Brannon, a textile graduate of the North Carolina State College, Raleigh, N. C., in 1936, has accepted the position of superintendent of the designing department of Entwistle Mfg. Co., Mill No. 2, Rockingham, N. C.

P. D. Barton, formerly with the Avondale Mills, is now night overseer of weaving at Selma Mfg. Co., Birmingham, Ala.

KEY MEN AT PIEDMONT (S.C.) MFG. CO.



First row (left to right): J. H. Payne, outside overseer; W. J. Clifford, overseer, weaving No. 3; George T. Flemming, overseer, spinning No. 3. Second row (left to right): B. F. Underwood, superintendent; J. C. McColl, overseer, weaving, Nos. 1, 2, 4 and 5; H. G. Crosskeys, master mechanic; W. B. Todd, overseer cloth room; Oliver Howard, overseer card room, Nos. 1, 2, 3, 4 and 5.

ENTERTAINS OVERSEERS

Key operating men of the Green River Mills, Tuxedo, N.C., were entertained at a dinner on Feb. 15 by R. W. Boys, president and treasurer of the company. After the dinner, which Mr. Boys plans to make a quarterly affair, various speakers discussed mill and allied problems.

H. D. Bone is now overseer of night carding at Avondale Mills, Birmingham, Ala., and **Frank M. Burks** is overseer of day carding.

T. G. Mungall is now overseer of dyeing at Avondale Mills, Pell City, Ala., having been appointed to this position to succeed his late father. He was transferred to his new position from the Sylacauga, Ala., plant of the same company.

F. M. Oxner, formerly associated with Slater (S. C.) Mfg. Co., is now overseer of the spinning department of Oconee Textiles, Inc., Westminster, S. C.

F. S. Kirby is now overseer of weaving at Aiken Mills, Inc., Bath, S. C. He was formerly superintendent of Buck Creek Cotton Mills, Siluria, Ala.

A. L. Strawn has been made overseer of weaving, second shift, at Ninety-Six (S. C.) Cotton Mill.

C. L. Lominack, formerly with John P. King Mfg. Co., Augusta, Ga., is now with Bama Cotton Mills, Opp, Ala.

Rollo G. West, overseer of weaving at George E. Duffy Mfg. Co., Worcester, Mass., for 24 years, has resigned.

Wm. J. Hallinan, formerly overseer of burling and sewing at Roubaix Mills, Clinton, is in charge of that department at Leominster (Mass.) Mills.

J. B. Powell, is overseer of cloth room at Drayton Mills, Spartanburg, S. C. He was formerly with National Weaving Mills, Lowell, N. C.

J. W. Bowen is now assistant to the overseer of spinning, first shift, of Avondale Mills, Alexander City, Ala.

J. G. Shedd, formerly overseer of the rayon twisting department of Winnsboro, S. C., plant of United States Rub-

ber Products, Inc., has gone to Danville, Va., where he has accepted a similar position with Riverside & Dan River Mills.

L. E. Hollar, overseer of the cloth room of Entwistle Mfg. Co., Rockingham, N. C., for eleven years, has resigned.

John E. Wright has resigned as overseer of the weaving departments, Nos. 1 and 2, at Riverside & Dan River Mills, Danville, Va.

M. C. Gantt has become overseer of the cloth department of Chadwick Hoskins Mills, Charlotte, N. C. He formerly held a similar position with the Eton Mills Co., Shelby, N. C.

J. C. Edwards, Jr., has been made master mechanic of Chicopee Mfg. Corp. of Ga., Gainesville.

Marshall Dilling, who presided at Gaston County S.T.A. meeting.

Gaston County Methods

In opening, carding, roving, and spinning discussed at winter S.T.A. meeting

THE winter meeting of the Gaston County Division of the Southern Textile Association was held Jan. 24 at Gastonia, N. C. Marshall Dilling, chairman, presided.

Chairman Dilling opened the meeting by asking the first question, "How does the cotton crop for the year 1935 compare with crops for 1931, 1932, 1933, and 1934?" He remarked that for the last four or five years cotton has been unfavorable, and for two or three of these years, *very* unfavorable. The 1931 crop, he said, was the worst of all from the standpoint of spinning qualities, with the 1935 crop produced under similar conditions, but apparently better than former crops.

SUBJECTS discussed at the meeting of the Southern Textile Association reported here include the quality of recent cotton crops, lickerin settings and speeds, card drafts, bending of presser fingers on roving frames, spinning drafts, length and speed of traverse on twisters, and regrinding of spinning and twister rings.

H. G. Winget said that he had checked the breaking strength of 2-ply 36s for several years and found the 1931 crop to be better than the crops for 1932, 1933, and 1934, but not so good as the crop of 1935. The 1932 and 1933 crops, he said, were approximately 13% weaker than the 1935 crop. W. M. Williams reported the 1934 crop as giving him better yarn than the other years in question. He uses 1 in. Ralph Richie said the 1935 crop is evener, cleaner, and gives a better breaking strength. He uses 1⅛ to 1 -in. staple.

Mixing Waste

"What is the best method of mixing sliver, roving, and underclearer waste?" asked Mr. Dilling, adding that he assumed that most of those present are "mixing the sliver waste back into cotton at the picker." W. M. Williams said that he puts all roving and spinning waste through a waste machine with a double beater and then through the opening room, where it is dropped from a hopper on the cotton. This requires a separate machine timed to run very slowly, so that the waste goes in when the opening takes place.

D. H. Whitener said that formerly he handled his waste as does Mr. Williams, but found that better results could be secured by putting two laps through a finisher picker. One lap from this is added to three laps on a finisher, and the lap resulting is run on the cards. The sliver is then put with the right number of ends behind the sliver-lap machine to take care of the waste. Laps run in this way give very little splitting. J. W. Long said that he runs his waste as does Mr. Whitener and that he cannot tell his waste laps from the others.

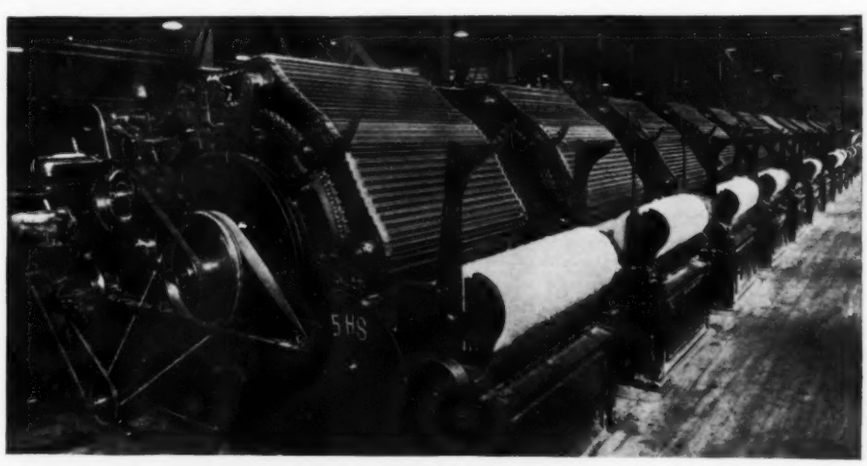
The next question was, "What is the best setting for feed plate to lickerin?" J. J. Duncan reported that he gets the best results from setting his feed plate at 10 for a 13-oz. lap. He has tried closer settings but found no improvement. This same setting works very well with both 1 -in. and 1 -in. cottons, and gives better carding and numbers. Mr. McLoud said that he gets good results on 1 -in. cotton with a setting of 14 on 13-oz. laps. Mr. Williams remarked that he uses a setting of 12 when seeking breaking strength exclusively, but would use about 8 if he wanted cleaner cotton. He prefers a setting of 8 on 13-oz. laps. G. R. Grice uses a 10 setting on 13-oz. laps.

Mr. Williams added that with a long-nosed feed plate he uses a setting of 12, and with a shorter feed plate he uses 15. He gets better results with a setting of 17 on 1¼-in. cotton; and, he asserted, "I don't know whether it was any cleaner but I got by with it." Chairman Dilling concluded the discussion of this question with the statement that most people appear to set the feed plate at about 10, although staple and grade of cotton and speeds of operation are factors which have to be taken into consideration.

Lickerin Speeds

"What is the best speed for lickerins?" asked Chairman Dilling, declaring that "many of us do not know the speed of our lickerin" nor the best speed for it to operate. G. R. Russell said that he does not know the best speed but that he is getting good results with from 325 to 450 r.p.m., the machines being recommended for 400 and 460. Chairman Dilling remarked that he had reduced lickerin speed in one mill from 424 to 297 on 1¼-in. cotton with excellent results. Trying the same thing in another mill on shorter cotton, he reported, he obtained poor results. The cards are different types, and the size of the lickerins may have had something to do with the results, he said, although he blamed it primarily on the different cottons.

Mr. Williams reported that a man from

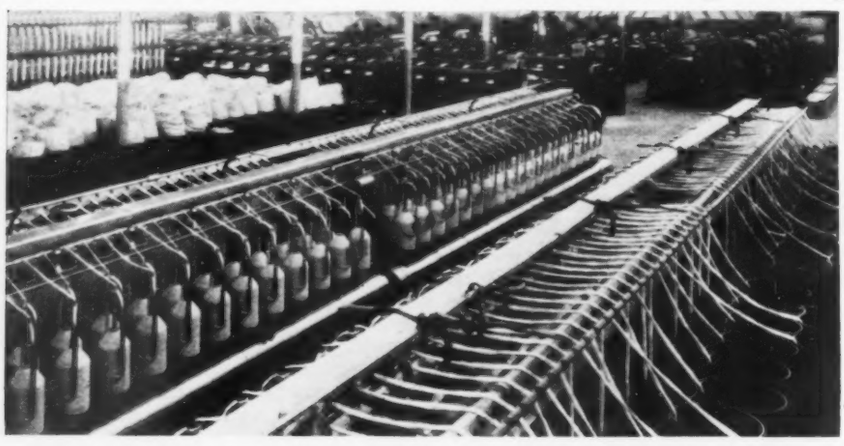


"Most people appear to set the feed plate at about 10."

another section of the country told him of a lickerin, 20 in. in diameter running about 20 r.p.m. The reason for this is that the larger diameter gives a high surface speed and more points in contact with the cotton. Mr. Whitener said that all of his cards are the same make, and that the speed of the lickerins has been cut from about 450 to less than 300—on the longer cotton first and then on the shorter, giving better results in both instances. On one occasion he returned to the higher speeds on the shorter cotton, but breaking strength fell so he again set the lower speed. He is "getting by" as far as cleanliness is concerned.

"Will light or heavy card sliver have any effect on breaking strength? If so, what effect?" asked the chairman. Mr. Winget said that if the sliver has to be drawn a great deal at some other point to bring it down, such a procedure would probably produce an uneven yarn. In answer to a question, Mr. Whitener said that he thinks too long a draft on a card on various numbers and staples of cotton?" asked Chairman Dilling, explaining that this embraced only regular drafting and not long drafting. Mr. Winget declared that he thinks 10½ to 11 is ideal draft, although he uses about 14 on 45s to 50s, and sometimes as low as 8 on other numbers. He remarked that 3-ply 50s drafted 14 might "get by" but that he would not have 2-ply 50s drafted that high. Mr. Grice asserted that he has gone as high as 18 on 36s but gets better results on the shorter drafts. He operates regularly with fair results on 15 to 16 draft, but explained that if the draft in the cards is extended to the limit, it is not easy to employ extra draft in the spinning. He would not go below 10.

Mr. La Far favored a draft of 9 to 11½ under ordinary conditions. J. F. Lewis reported a draft of 13.80 on 58s, asserting, however, that he has seen 50s made with a draft of about 6 when a break at 150 lb. was required. The yarn was 2-ply combed and made from 18½-hank roving.



"Will straightening the presser fingers have any effect on the roving or yarn?"

would injure the breaking strength of the yarn. Chairman Dilling said that he understood that English mills run a draft of 150 to 200 on cards. Consensus was that while tire-fabric and other mills not vitally interested in cleanliness of yarn could lower lickerin speeds and increase cylinder speeds in order to increase breaking strength, combed-yarn mills have to consider cleanliness first of all.

Straightening Presser Fingers

Chairman Dilling passed on to the next question, "Will straightening the presser fingers have any effect on the roving or yarn?" Mr. Russell said that he believes that taking out about one-third of the curve gives a more uniform roving and better break. He also wraps the presser twice instead of the usual once. Mr. Williams reported that the presser should be straightened just enough so that the roving wrapped around it will follow the crook. A short or crooked presser will cause a hard bobbin. The best method of determining the proper crook is to bend several pressers varying amounts and test the density of the bobbins.

"What is the limit of draft each way At the same mill, he said, 48s with a required breaking strength of 150 is made from 18½-hank roving. At his own mill, 3-ply 60s is being made with a draft of 14 that breaks at 200 lb. Short drafts are employed in the card room.

Mr. Richie said that as a general thing, with medium drafts in the card room, he prefers a draft of 12, but on a single yarn likes 9½ or 10. Mr. Whitener said that he thinks 8 is too low and 16 is too high. Mr. Williams concluded this discussion with the remark that no one had mentioned the kind of cotton used and that this is a big factor in the draft.

"Will different weight of top twister rolls have any effect on the breaking strength of ply yarn?" was the next question. Several members reported that they do not know the weight of their rolls. Mr. McLoud said that he has rolls of three different weights and believes the medium is the best.

Traverse on Twisters

"Which is the best—long or short stroke, fast- or slow-speed traverse of thread guide on twisters?" the chairman next asked, remarking that he has seen a lot of damage done by improper traverses. Mr. Winget said that he does not like to see a traverse guiding too fast, and that he likes to see it as long as possible without running off the ends. It does not make so much difference on coarse counts as to how many times the traverse goes back and forth, he said, but it does make a difference on fine counts. Above certain numbers he does not put the yarn around the rollers because it does not stay properly separated when crossing, and sometimes forms little "nips" or kinks. At high speed there are twice as many of these imperfections. The theory is that the twist will come back in; but actually one of the ends is left rather soft, weakening the yarn and making it look bad.

Chairman Dilling reported similar difficulty with the traverse, and said that he overcame it by slowing up the traverse to about half speed. There is still a little pull and drag. Mr. McLoud said that conditions are improved if the speed is lowered and the rolls kept free of rough places. A combination of slow speed and long stroke brings most of the threads out side by side and gives each one an opportunity to twist with the other in a more even manner. Breaking strength is improved by lengthening the stroke.

Mr. Grice reported that he gets good results by wrapping the thread around the top roll alone, except that there is some difficulty in keeping it in the guides. Mr. McLoud remarked that a worn roller could be made so smooth with a piece of emery cloth that the thread would not wrap around it at all, thereby saving the expense of a new roller.

Reworking Rings

"What is the value of reworking spinning and twister rings?" In the past, said Mr. Dilling, it was "impossible to get rings reworked when they became worn"—now everybody's doing it." D. C. Gunner said that he had eight frames of spinning rings reworked about four months ago, and is getting excellent results. Mr. Richie reported that he has been running reground 2-in. twister rings for eight months with good results. He does not know whether they will last as long as new rings but thinks the mill will break even if they last half as long. Also, he had 256 rusty 1½-in. spinning rings reground and has been running them on 80s and 90s for two months. The same travelers can be used if the ring is not too far gone, he said.

Chairman Dilling said that he believes rings can be reground for one-third to one-half the cost of new ones. Mr. Whitener remarked that he had a frame of reworked rings come back with rough edges. Mr. Goldburg had rings on 36 twisters reworked and reported them as good as new. There was doubt in the minds of several that greatly worn rings could be refinished satisfactorily.

H. G. Winget was added to the executive committee, consisting of Chairman Marshall Dilling, W. N. Williams, J. W. Long, William McLoud and R. F. Harris.

Business News

J. H. Windle & Co. has been established with office and warehouse at 231 South Main St., Providence, R. I., by J. H. Windle, who recently resigned as vice-president of the Standard Mill Supply Co. Mr. Windle has been in the textile machinery business for 35 years. He was selling agent for Woonsocket Machine & Press Co. and Fales & Jenks Machine Co., for 21 years up to the time those companies were taken over by Whitin Machine Works.

Crompton & Knowles Loom Works, Worcester, Mass., has elected John F. Tinsley, vice-president and general manager, as chairman of the development board, succeeding the late Albert A. Gordon. Albert Palmer was elected vice-chairman.

Frosted Wool Process Co., Lowell, Mass., announces that the first commercial installation of the process began operation at the Pacific Mills, Lawrence, Mass., in December.

Davis & Furber Machine Co., North Andover, Mass., at its annual meeting elected to the board of directors Harold T. Godfrey, Alfred C. Jensen, Walter T. Putnam and Arthur W. Reynolds. The officers are as follows: O. M. Godfrey, president; S. F. Rockwell, treasurer; A. W. Reynolds, clerk. Harold T. Godfrey and Arthur W. Reynolds are traveling representatives of Davis & Furber.

John P. Maguire & Co., Inc., 370 Fourth Ave., New York, announce the election of the following officers: president, John P. Maguire; vice-presidents, Frederick H. Wandelt, John H. Jephson, Howard J. Steib, Snelson Chesney, and William H. Bischof; secretary, Louis J. Moran; treasurer, William A. Murray; assistant secretary, Robert B. Matthews; assistant treasurer, Lester Prink. Mr. Maguire inaugurated the Textile Banking Co. 10 years ago, and until recently served as its president. All of the other officers were associated with him as officials of that company. Temporary offices of the Maguire company are on the 21st floor of the New York Life Building, with permanent quarters being prepared at 370 Fourth Avenue.

L. W. (Chip) Robert, head of Robert & Co., Atlanta, Ga., has resigned his position as assistant secretary of the United States Treasury, and is returning to private business in Atlanta. Robert & Co. are planning to open branch offices in Washington and New York.

F. A. Lazenby & Co., Baltimore, Md., is now headed by Joseph D. Lazenby as president, succeeding F. A. Lazenby who was killed in an automobile accident several months ago. The firm was started in 1902 and has specialized on winders, in particular a type which winds a maximum amount of filling to go in a shuttle. Francis M. Lazenby is secretary-treasurer of the company and O. R. Payne, general manager.

National Oil Products Co., Harrison, N. J., reports that Edwin A. Robinson, Ph.D., who for several years was in charge of development work with the Tennessee Eastman Corp., Kingsport, Tenn., is now connected with the former company. Dr. Robinson is a technician on the lubricating, tinting, sizing and processing of cellulose acetate yarns.

Textile Banking Co., New York, has elected A. E. Duncan, chairman of the board of Commercial Credit Co., Baltimore, as president, to succeed John P. Maguire.

Warp Twisting-In Machine Co. announces the removal of the New York office to 9 East 40th St., and the factory, shipping, and receiving departments to 47 Keen St., Paterson, N. J.

Whitin Machine Works, Whitinsville, Mass., has announced that Robert J. McConnell has been placed in charge of cotton mill service activities in New England and the southern territory. Mr. McConnel started with the York Mfg. Co., Saco, Me., and later became second-hand, then overseer of carding at the Pepperell Mfg. Co., Biddeford, Me. In 1918, he took charge of carding

Robt. J. McConnell

at the Naumkeag Steam Cotton Co., Salem, Mass., and was later made assistant superintendent. In 1930, Mr. McConnell was appointed superintendent of the spinning mill, the position he held when he left to join the Whitin organization.

E. F. Houghton & Co., textile oils and leathers, Philadelphia, announces the engagement of Dr. Irving J. Saxl in a consulting capacity as physicist for the Houghton Research Staff. Dr. Saxl has a wide reputation for original research and development of testing machines and new methods of physical and chemical approach to textile processing problems. He is the owner of patents on new products, processes and machines in the States and abroad. He is a member of the Warp Sizing Advisory Committee of the U. S. Institute for Textile Research, and of the joint committee of the Throwsters Research Institute and American Association of Textile Chemists and Colorists on rayon creping.

Steel Heddle Mfg. Co., Philadelphia, has moved its Atlanta, Ga., office to larger quarters at 268 McDonough Boulevard, the same address as that of the Stedheco Development Division, which will be operated as a division of the company. H. R. Gaffney is district manager.

John L. Crist, of Charlotte, N. C., southern sales manager for Calco Chemical Co., has resigned to become president of the newly organized **Southern Chemical Corp.** which is planning to construct a plant at Charlotte for the manufacture of an extensive line of dyestuffs and chemicals. Arthur J. Buchanan will be vice-president of the new firm, and I. G. Atlins will be superintendent.

New Publications

Zellwolle [Rayon Staple Fiber], by H. G. Badenheimer; published by the author, Feuerbachstrasse 56, Berlin-Steglitz, Germany; Price 13.50 RM.

Written in German, this is the first comprehensive treatise on the production of staple fiber, its spinning into yarn, and the manufacture and processing of knit and woven fabrics. The book contains 534 pages, 118 of which deal with the production of staple fiber, and about 300 with its manipulation in the textile mill. The remainder of the book contains a list of staple fiber producers, production statistics, and a bibliography of technical and patent literature. There are 212 illustrations.

Quality House; by Celeste Dunbar Lindsay; The Dial Press, Inc., New York; $2.00.

To those textile manufacturers who like their fiction to be placed in the locale of their industry (and why not?) this novel will have a strong appeal. It is one of the latest additions to the rapidly growing list of this type of literature, but it is different from many in that it is a novel rather than a piece of propaganda. It tells the story of Avis Smith, of her childhood in poverty in a southern mill town, and of her rise to social heights in that town. It is described as "a novel of the South, but of the true South." While not a great book, it is well worth reading.

Canadian Textile Inquiry Ordered

Canadian Government will investigate the textile industry. Premier King said that the inquiry which would be undertaken by a Royal Commission would examine costs, profits, wages, salaries, bonuses, tariff protection, investment, etc. A Government statement severely criticized the business practice of "arbitrarily shutting plants."

Soviet Good Customer For Textile Equipment

Considerable textile machinery of advanced types will be imported by the Soviet Government during 1936, it is reported. Recently the Soviet has placed numerous substantial orders here including a $200,000 contract with Universal Winding Co., Boston, for winding machinery; further orders for winding machinery are to be placed soon; a contract of nearly $100,000 was awarded to Draper Corp. for modern improvements on weaving machines. The Saco Lowell Shops sold three combing machines recently.

Lowell Alumni of R.I.

At its first meeting of the new year the Rhode Island Chapter of the Lowell Textile Institute Alumni Association elected the following officers for 1936: Leo Gleklen, president; K. B. Cook, vice-president; L. E. Moody, secretary-treasurer; G. F. Quigley (Franklin Rayon Corp., Providence) corresponding secretary. Meetings are held at 8 P. M. on the first Thursday of every month at the Narragansett Hotel, Providence.

M.I.T. Course Starts March 20

The eighth session of the School for Textile Research at the Massachusetts Institute of Technology begins March 20, continuing each Friday and Saturday until April 25. Sessions are Friday 9 a.m. to 5 p.m. and 6 to 9 p.m. and Saturday 9 a.m. to 5 p.m.

TEN MILLION SPINDLES SHOULD BE REVAMPED

"Certainly 10 million of the (cotton) spindles more or less active today should be replaced or thoroughly revamped to make them soundly competitive," states D. F. Edwards, president of Saco-Lowell Shops, in his annual statement to stockholders.

"This great accumulated volume of business, long held back by cotton mills generally to show sustained rates, if released at even a moderate rate would enable the textile machinery builders to operate in good volume for many years to come. At the moment, however, the release of any considerable part of the dammed-up buying of new machinery is not in sight.

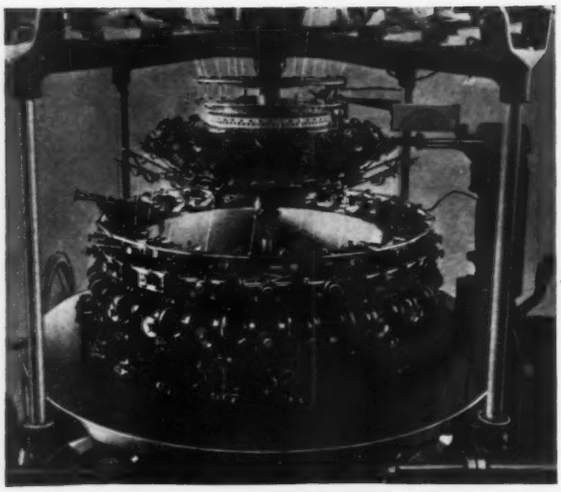
Reports of Foundation's Research Fellows Described

The Textile Foundation has issued a pamphlet describing the reports made by its research fellows. A limited number of reprints of the complete reports is available for distribution and study by technicians. (Requests for copies of the pamphlet should be addressed to the Textile Foundation, Commerce Building, Washington, D. C.)

Phi Psi Convention

The Phi Psi textile fraternity will hold its 33d annual convention at Hotel Charlotte, Charlotte, N. C., March 27 to 29, inclusive. From 150 to 200 delegates and members are expected representing chapters from New England through the South to Texas. The committee in charge includes: A. R. Thompson, Jr., general chairman; J. V. Killheffer, entertainment; T. W. Church, Jr., finance; F. W. Warrington, publicity.

NEW MACHINERY



Knitting Machine with Stroboscopic Control

Plans have been completed by Hemphill Co., Pawtucket, R. I., to show its new fabric machine at the Philadelphia Knitting Arts Exhibition in April. On this machine, which has been under development for several years, the number of feeds ranges from 17 on the 15-in. model to 26 on the 23-in. model, and for patterning purposes needles may be selected in different groups at each feed.

A sensitive high-speed instrument, known as the Banner Fabriscope, has been applied to measure the speed of yarns accurately and so insure that all knitting heads are feeding uniformly. This is a stroboscopic instrument consisting of two wheels having holes punched through at equal distances. When these holes are in alignment, light is visible through them. One, the master wheel, revolves in a horizontal plane above the cylinder head and is driven at any desired fixed speed by a positive drive. The holes are punched on the rim of the master wheel at right angles to the plane in which the wheel revolves. The other, the testing wheel, revolves in a vertical plane and is driven by the yarn to be tested. This wheel is moved from feed to feed and is said to reflect the slightest variations in the speed at which the yarns are fed into the various knitting heads. It is asserted that the Fabriscope shows changes in the rate of feed before these appear as flaws in the fabric.

At each knitting head micromatic adjustment is provided through an eccentric control which raises or lowers the stitch cams to secure even feeding where the Fabriscope has shown that an adjustment is needed. The adjustment is made with the Fabriscope in place at the knitting head and the Fabriscope indicates to the operator the exact moment at which the proper adjustment has been effected.

The machine is equipped with latch needles; but the finished fabric, upon examination, does not show a typical latch-needle stitch. A new method of stitch measuring is used, employing both the needles and the sinkers, so that the needles, by making a relatively short move in the cylinder slots, are able to form a symmetrical stitch. The use of latch needles is said to make the large number of knitting heads possible because of the simple controlling mechanism required..

At each knitting head is provided a compensator which pulls the yarn off the cones and delivers it at the knitting point in the quantities desired. This compensator is claimed to eliminate uneven tensions from the cones and yarn guides and to lessen strain on the needles. It is self-adjusting so that it delivers only the desired quantities of yarn regardless of whether the machine is running with floats, tucks, or plain stitches. Partly as a result of the uniform control of yarn tension at each knitting point, these machines are knitting yarns as fine as 50 denier.

As pattern changes are effected without changing jacks or adding wheels or other parts, it is said that a competent mechanic can stop the machine, change both pattern and weight of fabric, and resume knitting in 15 min.

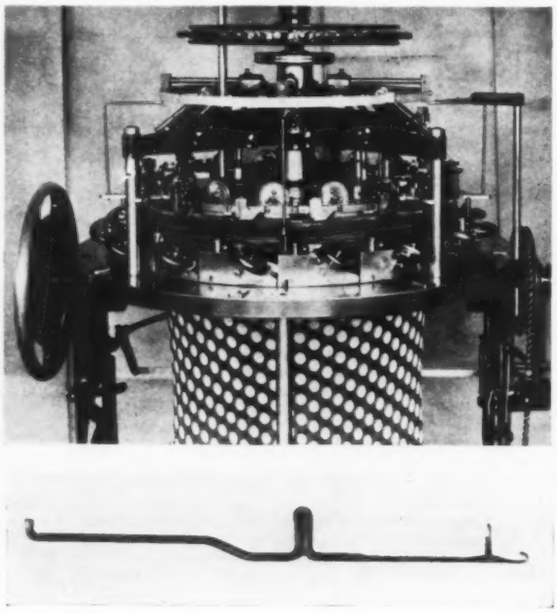
Knits Rib Patterns Face and Back

A new machine known as the PR (pattern rib) announced by H. Brinton Co., 3700 Kensington Ave., Philadelphia, is the first commercial machine to be offered to the knitting industry at large which can produce jacquard-type patterns on both the face and back of rib fabric. When, as is usual, a double-faced or reversible fabric is not required, the pattern is produced on the dial, rather than on the cylinder; and this arrangement affords an unusually high fabric elasticity, which is a distinct asset in bathing-suit materials, for example. Furthermore, the use of Kretser split or separating cams on the cylinder makes possible the knitting of welt-stitch figures.

Of especial importance is the high production of the machine. It is capable of knitting goods having jacquard-type patterns running up to about 48 needles wide by 64 courses deep at a rate of 60 to 70 yd. per 8-hr. day. Changes of pattern are quickly and easily made.

The most important achievement which this machine signifies is the application of interchangeable jack wheels to the dial, as well as to the cylinder, of rib knitting machines. This feat was accomplished through the design of a new dial needle, which is illustrated herewith. The tail or shank of the needle is flexible; and the wheel, instead of acting diagonally on the butts, acts on the shanks, flexing them downward out of the way of the push-out cam when the needles are to be held in welt position. The same set of wheels can be used for making a wide variety of patterns, and a raised welt effect can be produced on either cylinder or dial.

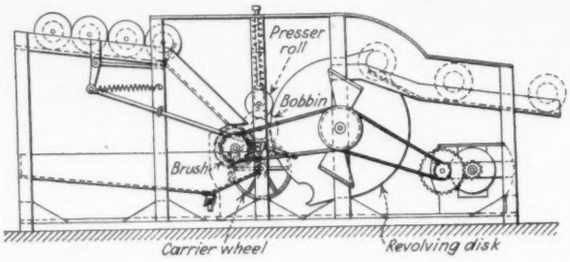
The reason that elasticity is gained in the fabric by knitting the pattern on the dial lies in the fact that it becomes unnecessary for the cylinder needles to change from regular rib knitting; and, as a result, there is no robbing a yarn from the dial stitches. A fabric so knitted is said to be as elastic as a plain-rib fabric.



Cleaner for Throwing Bobbins

Automatic cleaning of the flanges of iron-head throwing bobbins is the purpose of an invention by Frank Mont, 426 East Field St., Nanticoke, Pa. Mr. Mont's machine feeds the bobbins intermittently to a brush, working in a cleaning fluid, which removes dirt and other foreign matter from the flanges. The machine then delivers the bobbins to a suitable receptacle.

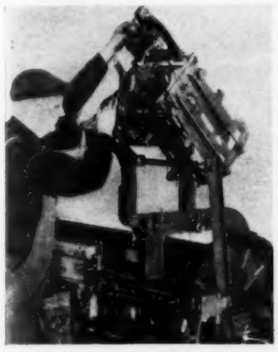
The diagram shows several bobbins in the feeding chute at the left. When one is automatically released, it rolls onto the carrier wheels and is held firmly, while revolving, against the brush by means of the presser roll. After a sufficient interval to allow cleaning, two revolving disks with grab claws raise the bobbin to the outgoing chute and also raise the presser roll while a new bobbin rolls into position.



Convertible, Pick-and-Pick or Automatic Loom

As a further development in the line of W-2 and W-3 woolen and worsted looms, Crompton & Knowles Loom Works, Worcester, Mass., now offers a convertible model which may be changed from a 4x1-box automatic to a 4x4-box pick-and-pick non-automatic, or *vice versa*, in 30 min. or less. Type W-2, with 20 harnesses, is now available in 4x1 automatic, 4x4 pick-and-pick, and the new convertible models, for either woolen or worsted weaving. Type W-3, with 26 harnesses, is also available in the same models.

Relatively few parts are required to change the convertible model from automatic to non-automatic, or back, and all parts are marked so that it is not necessary to use a gage in lining up. To change from 4x1 to 4x4, the following operations are necessary: (1) Remove thread holder from magazine, disconnect connector rod, disconnect color indication, remove two cap screws holding magazine stand to breast beam, and swing magazine out of position so that it rests on a casting; (2) remove box end, binder, box mouth, plain-end box, Victor check, and picker rod; (3) remove binder-pressure finger, arm, and spring; (4) exchange right-hand protector-rod fingers; (5) apply binder-release finger, and set screw-release arm in position; (6) attach outside box guide; (7) insert four-cell shuttle-box, lifter rod, and spring, fasten collar to bottom of lifter rod, and re-insert picker rod



with suitable packing; (8) apply Hodgman check; (9) attach picker balls to each double-roll arm; and (10) substitute box-pattern chain for 4x4 operation.

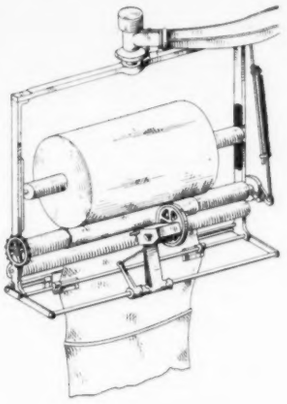
The change from 4x4 to 4x1 is made as follows: (1) Remove right-hand shuttle box, lifter rod, and lifter-rod spring, allowing lifter tube, push-down spring, and all box lifter-chain connections to remain in place; (2) remove outside box guide, Hodgman check, and picker rod; (3) remove binder-release finger, and loosen setscrews of release arm, but leave on shaft; (4) attach single-cell box, binder, box end, and box mouth, and re-insert picker rod with suitable packing; (5) remove one picker ball from opposite ends of each double-roll arm; (6) exchange right-hand protector-rod fingers; (7) attach binder-pressure finger, arm, and spring; (8) attach Victor picker-stick check; (9) swing magazine into position and fasten to breast beam; (10) connect detector rod and color indication, and attach thread holder to magazine; and (11) substitute box-pattern chain made up for 4x1 operation.

Return-Air Condenser for Pickers and Nappers

Knowlton & Newton Co., Inc., 545 Broadway, Lowell, Mass., announces a return-air condenser which is designed to filter dust-laden air from pickers and nappers, collect the flocks, and return the same air—dust free—to the room. The manufacturer states that returning the air, rather than wasting the approximate 1,500 cu.ft. per min. exhausted by each picker fan, makes humidification of the room feasible, decreases the fire hazard, and eliminates the need for a dust room. Another feature stressed by the manufacturer is that a steady flow of air to and from the picker makes the laps more uniform.

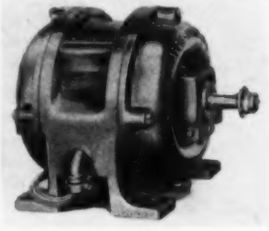
The machine is fully automatic, continuously self-cleaning, and requires no attention other than to have the receptacle, which collects the dust in the form of laps, emptied every two or three days. The self-cleaning feature allows an uninterrupted flow of air from the picker fans and eliminates back pressure.

The unit is 6 ft. long, 5 ft. wide, and 6 ft. high, and can stand on the floor or be suspended from the ceiling. It has a self-contained, ½-hp. motor drive. One machine will take care of any number of picker fans up to fifteen, or of from one to twenty nappers. By a slight turn of a wheel, the speed is adjustable to the number of pickers or nappers in operation.



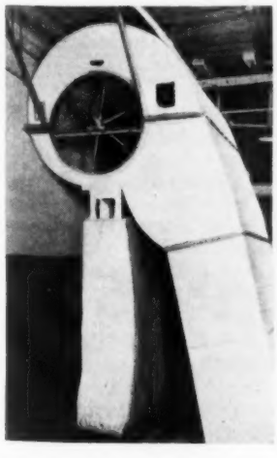
Yardage Counter

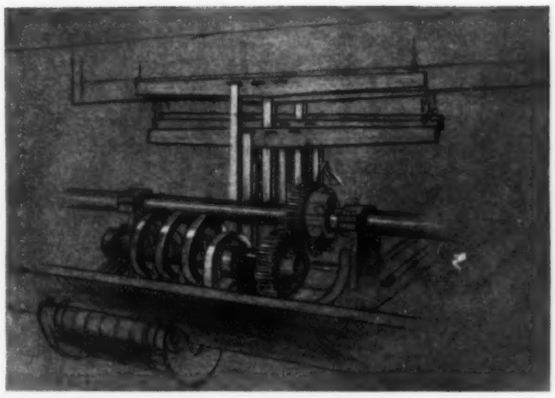
A yardage counter for use on Tompkins spring-needle machines is now offered by Tompkins Bros. Co., 623 Oneida St., Syracuse, N. Y. The instrument registers up to 999 yd., and is reversible, so that it subtracts when the cloth is pulled down instead of up when a press-off occurs. The figures can be set back to zero by one turn of the wing nut on the side of the counter.



Totally Inclosed Loom Motor

Allis-Chalmers Mfg. Co., Milwaukee, Wis., has placed on the market a totally inclosed motor designed for individual loom drives. Features cited include high efficiency and power factor, low slip, and close speed regulation from no load to full load. The stator frame is of cast steel, with feet cast integral. The stator coils are insulated and impregnated to make the windings moisture resisting. A final treatment with insulating varnish is designed to provide a winding of great mechanical strength and high dielectric value. The rotor is supported in waste-packed bearings, and the bars are silver-brazed to the end rings.



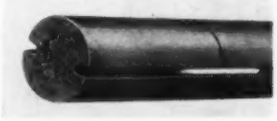


Under-Cam Harness Motion

A new under-cam harness motion for use on either the S-3 or S-4 shuttle-changing loom has been developed by Crompton & Knowles Loom Works, Worcester, Mass. This device is designed to give high speed, low upkeep, and high efficiency on simple cloths. It is limited to 6-harness capacity. Stress has been placed on accuracy of construction to insure that the harnesses will cross in the same place with respect to the lay on consecutive picks. Optional features are the C & K selvage motion, and the C & K box-motion indicator, which is needed for other than 2x2 weaves.

Grooved, Round-Leather Belting

With the object of providing a method of joining belt ends



without bumps or unevenness, Victor R. Clark Belting Co., 605 West Washington Blvd., Chicago, is marketing a round-leather belting which features two grooves in which the belt hook is buried. Wherever the belt is cut, the grooves are there to receive the hook, center it, and bury it, and there are no projections to catch the operator's clothing or hand. Greater uniformity of machine speed is also featured.

Self-Lubricating Twisting Ring

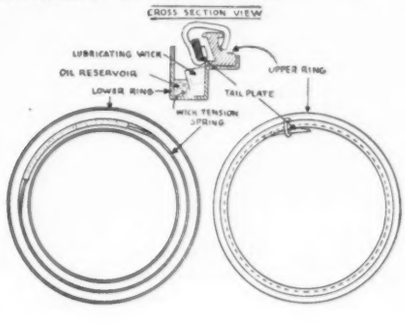
Longer life for the twisting ring, clean yarn, and increased speed and production are listed as the advantages of the self-lubricating ring announced by Stehedco Development Division of Steel Heddle Mfg. Co., Atlanta, Ga. The lower section of the ring is grooved, and in the groove is a wick for the oil. When the upper section of the ring which carries the tail plate is clamped on the lower half, forming a one-piece ring, the film of oil inside the tail plate never touches the wick, but lubrication takes place.

Rear-Tension Shuttle Eye

Watson-Williams Mfg. Co., Leicester, Mass., has added to its line a rear-tension shuttle eye to give mills the chance to equip automatic rayon shuttles with either center- or rear-tension eyes. It is stated that these eyes improve the fabric and reduce seconds. They are made for both the adjustable- and stationary-type tension.

Separable-Well-Tube Temperature Instrument

To meet the requirements of temperature measurement and control applications where the temperature-sensitive bulb must be protected against corrosion, supported adequately, or where the removal of the bulb at any time without interrupting the processing is desired, Taylor Instruments Cos., Rochester, N. Y., have developed the Thermospeed separable-well-tube system.



THE PERSONAL PAGE

S. Marshall Beattie, president and treasurer of Piedmont (S. C.) Mfg. Co., has been elected president of Woodside Cotton Mills Co., Greenville, S. C., and Easley (S. C.) Cotton Mills. **Ellis M. Johnston,** formerly president, was made chairman of the board, and will devote part of his time to the administration of the Woodside building, Greenville, and Myrtle Beach, a South Carolina real estate development and summer resort. **William H. Beattie,** president and treasurer of Wallace Mfg. Co., Jonesville, S. C., a brother of Mr. Beattie, was named vice-president and treasurer of the two groups. **George Brownlee** was elected secretary of the mills. Both of the Beatties retain their former mill connections.

Luther H. Hodges, whose rise to the general managership of Carolina Cotton & Woolen Mills Division of Marshall Field & Co., Spray, N. C., was sketched in the Textile Personalities page in last month's issue, has now been made production manager of all the manufacturing plants of Marshall Field & Co. The company consolidated the balance of its plants—namely 14 more—under one head and gave Mr. Hodges the managerial job for the whole list, now numbering 28. It includes mills in the South, New England, Middle Atlantic States, Middle West, the Philippines, Puerto Rico, and China. **John F. Margeson, Jr.,** has been made general sales manager of the manufacturing divisions of the company. **J. O. Thomas** has been relieved of his duties as manager of American Warehouse, main finishing plant, and made administrative assistant to Mr. Hodges. **Jos. H. Lindsey** has been promoted to general superintendent of American Warehouse and of Spray Bleachery divisions. His former position as superintendent of Wearwell Bedspread Mill of the company, Leaksville, N. C., has been filled by **C. A. Davis,** formerly superintendent of Pilot Mills, Raleigh, N. C.

Herbert K. Webb, head of Chas. J. Webb & Sons Co., Philadelphia, was elected president of the National Wool Trade Association at the annual meeting held in Boston, March 2. **L. A. Schriener** of Kerrville, Tex., was elected vice-president, succeeding **Mark Harris** of St. Louis. Other vice-presidents are **Durham Jones** of Boston, **H. S. Silberman** of Chicago and **Lorrin H. Tryon** of San Francisco.

G. B. Dorsey, of Woodward, Baldwin & Co., **John C. Hughes, Jr.,** of McCampbell & Co., Inc., **Thomas D. Mackay,** of Haywood, Mackay & Valentine, Inc., and **Frank L. Walton,** of Catlin Farish Co., Inc., all of New York, were elected directors of Association of Cotton Textile Merchants of New York at the annual meeting March 5. Officers later elected include **W. Ray Bell,** president; **Saul F. Dribben,** vice-president; **John C. Hughes,** treasurer; **S. Robert Glassford** and **George M. Miller** to serve with the three officers as the executive committee.

Henry A. Berry, who has been secretary of Passaic (N. J.) Print Works since 1888, has resigned.

S. Marshall Beattie

Luther H. Hodges

Franklin W. Hobbs, president of Arlington Mills, Lawrence, Mass., has completed 45 years of service with the concern. Mr. Hobbs has served as president of both the National Association of Cotton Mfrs., and the National Association of Wool Mfrs.

A. L. Brown, vice-president and general manager of Cannon Mills Co., Kannapolis, N. C., was elected vice-president of the Guernsey Breeders Association.

E. B. Lowery is president, secretary and treasurer of the newly organized York Yarn Mills, Inc., which recently purchased the plant of the closed Travora Mfg. Co., York, S. C. **Jesse J. Fariss,** of York, was appointed plant superintendent.

Lincoln Baylies has been appointed assistant treasurer of Naumkeag Steam Cotton Co., Salem, Mass. Mr. Baylies has been active in N.A.C.M. affairs for many years having served as president of the association. He has been with the Nashua Mfg. Co.

J. W. Burnett has been elected president and treasurer of Southern Weaving Co., Greenville, S. C., succeeding **F. D. Murdock,** who recently resigned in order to move to the East. **W. C. Cleveland** was made vice-president, the position formerly held by Mr. Burnett, and **William Loundes, Jr.,** was named secretary.

William George has been elected chairman of the board of the reorganized Aurora (Ill.) Cotton Mills, Inc. Other officers are: president, **E. T. Gurry;** vice-president, **R. H. Cooper;** secretary, **D. V. McWethy.**

John A. Sweetser, president of Bigelow Sanford Carpet Co., Inc., Thompsonville, Conn., has been elected a director of New England Telephone & Telegraph Co.

T. H. Rennie, for many years in charge of operations as vice-president and general manager of the Pell City, Ala., plant of Avondale Mills, has resigned from active business. Mr. Rennie's resignation is effective March 31, after which time **Donald Comer** will assume charge until a successor is announced.

F. P. Bacon, founder and owner of the Southern Mercerizing Co., Tryon, N. C., between 1909 and 1921, has sold his interest to the China Grove (N. C.) Cotton Mill Co. **W. C. Ward,** who joined Mr. Bacon in the enterprise in 1921, retains his interest and will be in active charge of the plant as vice-president and treasurer. **D. S. Blois,** of Tryon, will be secretary.

W. A. Kennedy, vice-president of W. J. Westaway Co., Ltd., textile mill supply firm, Hamilton, Ont., was chosen recently as a director of Aberfoyle Mfg. Co., of Canada, Ltd., Guelph, Ont. Mr. Kennedy has supervised the sales of Aberfoyle yarns in Canada for the past seventeen years.

Raymond S. Burrows, formerly plant manager of Tubize Chatillon Corp., at Hopewell, Va., has sailed for Sao Paulo, Brazil, where he will manage the plant being set up by the company.

John Sprunt Hill, Durham, N. C., first vice-president of the Erwin (N. C.) Cotton Mills Co., and prominently associated with other cotton mills, made a gift of the Carolina Inn at the University of North Carolina, Chapel Hill, N. C., to the university.

Frank H. Metcalf has resigned as treasurer of Farr Alpaca Co., Holyoke, Mass., and is succeeded by **Donald R. Greene,** son of **Addison L. Greene,** chairman of the board of directors. Mr. Metcalf continues to hold the office of president. **Joseph Metcalf** has been elected agent of the company. **David H. Martin** succeeds **Edward J. Meacham** as secretary. **William Skinner, 2d,** has resigned from the board of directors.

William P. Jacobs, secretary and treasurer of the Cotton Manufacturers Association of South Carolina, secretary of the Print Cloth Group and author of recent book, "The Pioneers," has been elected president of Presbyterian College, Clinton, S. C. He has been acting president of the institution for some time, and his new duties will not interfere with his present connections.

W. N. Matlock, superintendent of Hickory (N. C.) Hosiery Mills, Inc., has been made secretary and general manager, succeeding **J. J. Dell,** resigned.

Textile Calendar

Textile Operating Executives of Georgia, spring meeting, Georgia School of Technology, Atlanta, Ga., March 14, 1936.

Master Mechanics Division of Southern Textile Association, Franklin Hotel, Spartanburg, S. C., April 10, 1936.

Thirty-second Annual Knitting Arts Exhibition, Commercial Museum, Philadelphia, April 20 to 24, 1936.

National Association of Hosiery Manufacturers, annual meeting, Commercial Museum, Philadelphia, Apr. 22, 1936.

Underwear Institute, annual meeting Commercial Museum, Philadelphia, April 23, 1936.

North Carolina State College Style Show, Raleigh, N. C., April 23, 1936.

Eastern Carolina Division of Southern Textile Association, Raleigh, N. C., April 23, 1936.

American Cotton Mfrs. Assn., Annual Convention, Pinehurst, N. C., Apr. 30-May 2, 1936.

Cotton Manufacturers Association of Georgia, Hotel General Oglethorpe, Savannah, Ga., May 21 and 22, 1936.

National Cotton Week, June 1 to 6, 1936.

American Association of Textile Chemists & Colorists, annual meeting, Providence, R. I., Dec. 4 and 5, 1936.

J. W. McElhannon, has been made secretary and treasurer of the Durham (N. C.) Cotton Mfg. Co., succeeding E. **O. Steinbach,** who resigned to become manager of the Florence Mills, Forest City, N. C., as noted last month.

A. T. Eskridge was elected president of the Paul Knitting Mills, Pulaski, Va., and of the Inspiration Hosiery Mills, Wytheville, Va., at the annual meetings of stockholders held recently.

Col. C. H. Bacon has sold his Morristown, Tenn., mill to the Interwoven Stocking Co., New Brunswick, N. J., and has closed other of his mills with a view to concentrating his hosiery interests nearer his home area of Loudon and Lenoir City, Tenn.

John L. Everett has been elected president of Grenaco Knitting Mills, recently organized at Rockingham, N. C., and **John L. Everett, Jr.**, treasurer. **W. R. Garrison** will be plant superintendent.

E. F. Woodside, vice-president of Easley Cotton Mills and vice-president and secretary of Woodside Cotton Mills Co., Greenville, S. C., has resigned.

W. Homer Turner, director of the Research & Planning Bureau of the National Federation of Textiles, Inc., resigned that post Feb. 28, to become director of sales and market research for the manufacturing division of Marshall Field & Co., with headquarters at that company's New York office.

M. O. Alexander has been promoted to general superintendent of the six mills of the Easley and Woodside Mill groups, Greenville, S. C. He has been superintendent of the Woodside Cotton Mill since its inception 30 years ago. **J. Tom Bray,** overseer of carding at Woodside succeeds Mr. Alexander as superintendent.

H. B. Miller, division manager and superintendent of the Shelby (N. C.) plant of Consolidated Textile Corp., has been made general superintendent of two plants of Pee Dee Mfg. Co., Rockingham, N. C.

B. R. Burham has resigned as superintendent of Mill No. 4, Pelzer (S. C.) Mfg. Co.

D. A. Overbey has been elected assistant-treasurer of Riverside & Dan River Cotton Mills, Inc., Danville, Va., a new position. All other officials were reelected.

William M. Cronan, who has served for six years as superintendent of Gold Mark Knitting Co., Woonsocket, R. I., has been named president and manager, to succeed **Thomas F. Reilly,** resigned.

H. A. Knight, of High Point, N. C., one of the incorporators of the Premier Silk Mills, Inc., which recently purchased the Hillcrest Silk Mills plant in that city from the Carolina Cotton & Woolen Mills Co., of Leaksville-Spray, N. C., is general manager of the new company, a position he occupied under the operation by the former owners.

J. Colby Lewis has been appointed general superintendent of J. & P. Coats, Inc., Pawtucket, R. I., to succeed the late H. Roy Horton. His former position as manager of the cotton division of Clark Thread Co., Newark, N. J., an allied concern, has been taken by **Arthur W. Babbitt,** formerly superintendent of Narragansett Mills, Fall River.

J. L. Tucker is in charge of adapting spinning and other textile processes to the manufacture of the widely-discussed glass-fiber textiles at Owens-Illinois Glass Co., Newark, O.

Fred S. Hunt, general manager of Winchester (Va.) Woolen Mills, has been added to the board of directors to replace **Stuart Perry.**

John J. McElroy, superintendent of Maverick Mills, East Boston, Mass., is spending a month in Germany, Holland, and England, where he will study synthetic staple fibers and fine fabrics.

G. T. Fisher has been named secretary-treasurer of the St. Pauls (N. C.) Mill Co., to succeed the late A. R. McEachern. **W. T. Maddrey,** formerly of Lumberton, was elected assistant secretary-treasurer.

Obituary

Andrew Raeburn, aged 65, secretary of New Bedford (Mass.) Cotton Manufacturers' Association for the last seven teen years, and treasurer of the Wamsutta Mills in that city, from 1913 to 1919, died at his home in New Bedford on Feb. 9. He has previously been connected with the Harmony Mills, Cohoes, N. Y.

Charles Bradley Smith, aged 78, former treasurer of Star Worsted Co., Fitchburg, Mass., and at one time a member of the woolen firm of Converse & Smith, North Weare, N. H., died at his home in Fitchburg on Feb. 13.

Dexter Stevens, aged 51, who, on Feb. 11 was elected treasurer and general manager of Naumkeag Steam Cotton Co., controlling the Pequot Mills at Salem, Mass., and the Danvers Bleachery at Peabody, and who also remained as vice-president and general manager of Esmond (R. I.) Mills, died at the Ritz Carlton Hotel, Boston, on March 4, after a short illness. At Naumkeag, Mr. Stevens succeeded Ernest N. Hood, who resigned as treasurer, and the late J. Foster Smith, who served as agent. Mr. Stevens was senior vice-president of the N.A.C.M. and headed its policy committee last year. His home was in Warwick Neck, R. I., although he had intended moving to Salem. He was graduated from Lowell Textile Institute in 1904 and became superintendent of Esmond Mills in 1914. In 1922, he was made general manager and served in that capacity until 1929, when he became vice-president of the old Manville Jenckes Co., Pawtucket, R. I., later being elected president. When reorganization of the company started, Mr. Stevens joined the Utica (N. Y.) & Mohawk Cotton Mills, returning to Esmond in 1934.

Francis T. Lyons, aged 54, vice-president in charge of factoring in Commercial Investment Trust, Inc., New York, died suddenly Mar. 6. He entered the factoring field in 1903 with William Iselin & Co. and was later with Fredk. Vietor & Achelis and with Scheffer, Schramm & Vogel.

William Worth, aged 51, co-founder and secretary-treasurer of Worth Bros., Los Angeles, Calif., worsted spinners, died early in March.

J. W. Emory, aged 45, owner and general manager of the Emory Hosiery Mill, Durham, N. C., died recently.

Alexander R. McEachern, aged 75, pioneer cotton manufacturer and one of the founders of the St. Paul's (N. C.) Cotton Mills, died last month in a Fayetteville, N. C., hospital. He was secretary and treasurer of the St. Paul's mill at the time of his death, and was interested in Holt-Williams Mfg. Co.

James E. Simpson, Jr., aged 40, president of Jedco Dye Works, Paterson, N. J., died Jan. 23.

Frank P. Mogridge, aged 72, proprietor of the Long Valley Rug Mills, Mertztown, Pa., died recently.

Roger Brown Curtis, aged 68, vice-president of Hamill Spinning Co., Philadelphia, died on Feb. 11.

A. L. Hill, aged 55, well-known in the yarn trade and formerly with North American Rayon Corp., but more recently with Neisler Mills, Inc., Kings Mt., N. C., died Jan. 26.

J. Edward Martin, aged 66, associated with cotton goods selling houses in the New York market for nearly 50 years from his start with the old house, Haynes & Bishop, died Jan. 20. He was for years associated with the sale of products from the mill of W. J. Vereen.

Charles A. Julia, agent of the Farnsworth Co., from September, 1896, until he retired last July, died recently at his home in Lisbon Centre, Me.

James F. Gallivan, president of the Gallivan Building Co., Greenville, S. C., and a director of Southern Bleachery, died recently. Mr. Gallivan's firm has been active in the construction of southern textile mills for many years.

Edward W. Lancaster, aged 53, New York representative of the yarn department of Cannon Mills, Inc., since 1926, and with the concern for over 25 years, died in New York on Feb. 9. Prior to joining Cannon Mills, Mr. Lancaster was with Franklin D'Olier & Co.

Albert E. Goodby, aged 64, president of Narragansett Cotton Mills, Inc., Apponaug, R. I., died at his home in Cranston Feb. 6.

Clive Belden Vincent, aged 72, chairman of the board, Torrington (Conn.) Co., died Feb. 4.

Charles B. Warren, president, West Warren Thread Works, Westfield, Mass., died Mar. 1.

David P. Rhodes, aged 64, president of Indian Creek Mills, Inc., and of Rhodes-Rhyne Mills, Lincolnton, N. C., and formerly president of Rhodes-Whitener Mill, Taylorsville, N. C., died recently at his home in Lincolnton.

S. A. Wylie, Greensboro, N. C., overseer in the Proximity Manufacturing Co., died Feb. 27, following several weeks' illness.

TEXTILE WORLD'S

Cotton Digest

WE DRAW our text this month from a cotton goods merchant who wrote to the Cotton-Textile Institute congratulating it on the 1936 Swatch Book. Among other things, he said:

"One of the greatest investments this industry could make would be a subscription of sufficient funds to put your New Uses Section in a position where it could place this book in the hands of a selected list of consumers in every large city in the United States. . . . . To do this job as it should be done I believe you should have a fund of not less than $500,000 annually—$1,000,000 would be a better investment. The Institute has convinced me that you can get $20 in advertising value for every $1 spent."

The man is right, of course. Unfortunately he, and the relatively few merchandising-minded executives like him, have been right for years, but nobody does anything about it—at least on the scale that his letter suggests. The Institute has developed a sample of the swell job it can do in creating and broadening sales outlets. It is about time for the industry to place a real order, accompanied by cash. A million a year is not a day-dream; it would be a most lucrative investment.—*Editor.*

AAA Aftermath

AAA was hardly dead before a substitute bills was proposed in its place. This bill, which will impose an excise tax on all commodities benefitting under the soil conservation-subsidy act, is expected to be introduced into the House about the middle of March. Farmers will receive $500,000,000 for economic care of land and for curtailing certain crops. According to several Representatives and Senators, this money probably will be raised by reviving the processing tax, possibly at a lower rate than under AAA but on a much wider base.

Despite Secretary Wallace's characterization of the Supreme Court's order for the return of funds in escrow as "probably the greatest legalized steal in American history," manufacturers continue to make refunds to customers, generally under the provisions of the "Charlotte clause." Combed yarn mills are reported to be absorbing attorney's fees and other costs connected with the refunds, although some concerns are advising customers that reimbursement will be less a small percentage to cover these costs.

Following a meeting of the Cotton Manufacturers Association of South Carolina, which issued a statement to the effect that all taxes would be refunded as soon as possible, Governor Olin Johnston recommended to the General Assembly that a tax of 75% be imposed on processing taxes impounded in South Carolina. He said that to allow the processors to keep and use this "excessive profit" would be "rank discrimination of the worst sort."

Jobbers and converters became embroiled in a squabble concerning refund adjustments, the former asserting that they did not consider the latter's plan equitable.

In reply to Secretary Wallace's charges, Dr. Claudius T. Murchison, president of the Cotton Textile Institute, in a prepared statement, pointed out that the mills are liable to their customers for $40,000,000 guaranteed under various clauses inaugurated last August in anticipation of the Supreme Court decision.

In general, according to Dr. Murchison, it can be said that neither cotton mills nor distributors of cotton goods are enjoying any appreciable amount of "velvet" from the processing tax refunds.

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Past Meetings

The Cotton Manufacturers Association of South Carolina met early in February at Greenville, S. C. A statement was issued by Wm. P. Jacobs, secretary, asserting that the mills would not benefit by refunded processing taxes, as charged by Secretary Wallace. Continuation of a $2,000 contribution to Clemson College, to be distributed as prizes in cotton raising contests, was voted. Allen Johnson, president of American Spinning Co., a new member, was appointed chairman of the committee on resolutions. S. Marshall Beattie, of Greenville, is president.

The Cotton Piece Goods Salesmen's Association met in February at New York, with Byron G. Moon, head of Byron G. Moon Co. as guest speaker.

Textile Operating Executives of Georgia met March 14 at Georgia School of Technology, Atlanta, Ga. A detailed account of the discussions will be carried in an early issue.

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Another Step Toward Reopening Amoskeag

Reopening of Amoskeag Mfg. Co., Manchester, N. H., closed since last September, came one step closer Mar. 7 when workers of the cotton division voted 3,669 to 3,133 to accept an agreement reached by company officials and labor leaders. The agreement provides for a wage decrease averaging about 7%, and is based on what the management calls "competitive wage levels." Readjustment of work assignments is also a feature of the plan. So great was interest that 2,000 were already on hand when the polls opened.

A plan for reorganization of the capital structure of the company under section 77B of the Bankruptcy Act was presented at the hearing held in Federal Court, Boston, on Mar. 9. The plan, which provides for exchange bonds, has the approval of both the stockholders' and bondholders' committee but must be approved by two-thirds of the bondholders within four weeks. If so approved, the mill may start up before May 1.

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Lawton Strike Causes Liquidation Move

Stockholders of Lawton Mills Co., Plainfield, Mass., on Mar. 4 voted to accept the offer of the General Cotton Corp. for the purchase of the plant and mill village. Further negotiations were pending at time of going to press. To date, General Cotton Corp. has acted as a liquidating rather than an operating company, but it is the hope of the Lawton management that means will be found to continue operations. Trouble started with a strike on Jan. 6. According to Samuel C. Lamport, president, the workers were asked to accept a sliding scale of wage reductions to equalize wages with those paid in competing plants, and outside labor leaders entered the picture and stirred up trouble.

Official poster for the forthcoming Sixth National Cotton week, which high-lights the average American family

Markets Were Slow

The cotton goods market moved lethargically through the first half of February, progress checked by threats of new taxes. Prices held fairly well, although print cloths were said to be selling below cost. Toward the latter part of the month, sales improved.

Cotton yarns softened due to slackening of demand. Some outlets, however, continued active. Outerwear knitters, pile fabric and plushes, and wire insulating branches were fairly active.

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Industry Notes

The American Cotton Manufacturers Association will hold its 40th annual convention April 30 to May 2 at Carolina Hotel, Pinehurst, N. C.

Cotton Manufacturers Association of Georgia will hold its 36th annual convention May 21 and 22 at General Oglethorpe Hotel, Savannah, Ga.

Appropriation of $1,300,000 for tests of cotton's uses in highway construction was announced March 9, by Secretary of Agriculture Wallace. The Secretary's program calls for a maximum of 1,000 miles of cotton roads.

Strike at Paul Whitin Mfg. Co., on since Jan. 14, was settled Mar. 9.

Cotton reports will be made during the year by the Department of Agriculture on the following dates: May 22, July 8, Aug. 8, Sept. 8, Oct. 8, Nov. 9, and Dec. 8.

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Cotton Price Trend

Key cotton prices of March 2 and a month ago, contrasted with those of the last two years follow:

			Mar. 1	
	Mar. 2	Jan. 25	1935	1934
Spot Cotton, N. Y..	11.28c	11.95c	12.60c	12.20c
Ditto, high previous month.....	11.80c	12.90c	12.80c	12.65c
Ditto, low previous month.....	11.25c	12.55c	12.45c	11.75c
10s hosiery cones...	24c	26c	27½c	30c
10s/2 carded skeins	24c	25½c	28c	30c
20s/2 carded peeler warps.....	27c	28½c	31c	33½c
60s/2 combed peeler warps.....	54c	55c	56½c	62c
60s/2 mercerized cones.....	68c	68c	70c	74c
37 in., 3-yd. drill...	8½c	8¼c	9½c	10c
38½-in. 64x60s.....	5 7/8c	5 7/8c	6¼c	7¼c
36-in. 4-yd. 56x60s.	7¼c	7¼c	7½c	8½c
Denim, 2.20s.....	14c	14c	14½c	16c

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January Statistics

Statistics of particular interest to cotton manufacturers, showing January operations and the raw material situation:

Spindle activity	111.9% capacity, or 7,713,696,496 spindle hours
Cotton consumed	591,309 bales
Cotton exported	525,636 bales
Cotton imported	13,547 bales

December operations for comparison:

Spindle activity	103.8% capacity, or 6,803,980,354 spindle hours
Cotton consumed	498,329 bales
Cotton exported	877,480 bales
Cotton imported	12,738 bales

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Cotton Mill News

M. Snower & Co., 361 West Chestnut St., Chicago, Ill., cotton goods, have purchased the Opelika (Ala.) Mfg. Co. and will remodel for production of cotton yarns. Price paid was $41,500.

Columbus (Ga.) **Mfg. Co.** is understood to have installed approximately 13,000 spindles of H. & B. long-draft spinning, replacing obsolete equipment. The frames are powered with 52 of the new GE variable-speed motors.

Anchor Duck Mills, Rome, Ga., have awarded general contract to C. M. Guest & Sons, Anderson, S. C., for extensions and improvements in slasher room, estimated to cost $20,000. J. E. Sirrine & Co., Greenville, S. C., are architects and engineers.

Pearl River Corp., Picayune, Miss., recently capitalized at $300,000, to operate a local mill on cotton cloth, has plans for initial unit, one-story sawtooth roof type, 180x275 ft., to be located at Williams-Goodyear Blvd. and K St. It will cost over $150,000 with machinery. Krouse & Brasfield, Meridian, Miss., are architects.

Greensboro (N. C.) **Weaving Co.** has begun one-story addition, 120x140 ft., for which general contract was let to Charles W. Angle, Inc., Greensboro.

Pickett Cotton Mills, Inc., High Point, N. C., has installed combing machinery and at the same time its other equipment was overhauled. Boshamer & Co., Philadelphia, have been appointed exclusive selling agents for Pickett carded and combed knitting yarns.

Cannon Mills Co., Kannapolis, N. C., is reported to have leased a plant from the Durham (N. C.) Hosiery Co. for the purpose of making towels.

Smithfield (N. C.) **Mfg. Co.,** recently organized for $100,000, has taken over former Smithfield Cotton Mill, Inc., idle since 1933, and will place in service.

Lola Mills, Inc., Stanley, N. C., has completed removal of old looms from the old mill building. Several new winders have been set up in their main two-story building. Katterman-Mitchell Co., silk weavers, are contemplating installing looms in the Lola building.

Hart Cotton Mills, Inc., and **Fountain Cotton Mills, Inc.,** both Tarboro, N. C., are planning a new one-story addition, in connection with group plan for joint operation of the two plants. Plans will be drawn by J. E. Sirrine & Co.

Whitney (S. C.) **Mfg. Co.** is changing over the spinning cylinders on about 60 frames, recently bought in the East, so that the frames will be longer and contain more spindles. Spoolers, warpers, and warper creels are being equipped with a vacuum dust-collecting system. Work done by Textile Shop, Spartanburg.

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Cotton Financial Notes

Lincoln Cotton Mills, largest textile plant at Huntsville, Ala., was closed by a strike Feb. 13, about 1,600 workers being effected.

Lowe Cotton Mills, Huntsville, Ala., is having its machinery tuned up after standing idle nearly four years. The mill was recently acquired by Edwin Farnham Greene, president of the Enderley Corp., New York. Mr. Greene with J. R. Hale of Robert & Co., Atlanta, inspected the property Feb. 26.

Sagamore Mfg. Co., Fall River, Mass., reported net loss for 1935 of $112,488, against a net profit of $20,738 for 1934.

Charlton Mills, Fall River, Mass., reported net loss of $136,000 for 1935, against net loss of $28,441 for 1934.

George D. Flynn, Jr., has been appointed by the receivers, as liquidating agent for the Butler Mills Division of Hoosac Mills Corp., at New Bedford, Mass., Equipment comprises about 100,000 spindles and 2,400 looms.

Otis Co., Three Rivers, Mass.—Lease of portion of this mill recently noted in these columns has not been made, and report is incorrect.

Consolidated Textile Corp., New York, reorganizing under 77b, made a profit of $11,800 during January, according to report made in court.

High Point (N. C.) **Yarn Mills**—E. G. Watkins, High Point, has been appointed temporary receiver for this company.

Scranton (Pa.) **Lace Co.** reports net profit for 1935 of $396,881, against $71,525 for 1934.

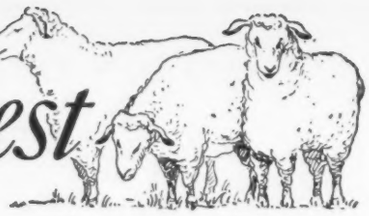
Langley Cotton Mills Co., Aiken, S. C., was placed in receivership on Feb. 24, W. E. Bush of Augusta and P. F. Henderson of Aiken being co-receivers.

Neely-Travora Mills, York, S. C.—The Travora mill, idle since last April, has been purchased by a group headed by E. B. Lowry and C. J. Youngblood, and plans are going forward to reopen it at an early date. The **York Yarn Mill** has been incorporated as the operating company. **James C. Cloninger,** Gastonia, N. C., and associates have purchased the Neely Mill of Neely-Travora Mills, York, S. C.

Riverside & Dan River Cotton Mills, Danville, Va., reports net profit for 1935 of $233,942 on $19,000,000 business.

TEXTILE WORLD'S

Wool Digest



THE American Woolen Co. report for 1935 reflects strikingly the dramatic change which took place in woolen and worsted manufacture last year. The contrast between the depths of 1934 and the heights of 1935, in the industry as a whole, is particularized for one company in a jump from a $5,458,455 loss to a $2,740,599 profit.

To stockholders in the company, the most interesting and significant information in the report is that pertaining to modernization of the company's plants. In the last five years, states President Lionel J. Noah, $6,429,918 has been spent on new equipment. As an example he cites the fact that in 1931 less than 41% of the company's looms were automatic, whereas today more than 67% are automatic—and adds that "this highly important work of modernizing equipment is being continued."

As we noted in the annual Editorial Inventory in our January issue, this activity—modernization—is one of the three phases which we would high-light for textile manufacturers in 1936. —*Editor.*

American Effects Large Sales and a Profit

The American Woolen Co., reports an aggregate business of $70,317,238 for 1935, on which a net profit of $2,740,599 was made. Sales were 44.35% over the $48,711,188 done in 1934 on which a net loss of $5,458,495 was sustained. The company's 1935 business in yards exceeded that for any year since 1927. A dividend of $1 on the preferred stock was voted on Feb. 3.

The company pay roll for 1935 (not including executive, selling or administrative) was $23,854,900 against $15,713,426 in 1934.

Inventory at end of 1935 totaled $30,533,026 against $21,883,274 a year previous. Net current assets were $37,938,299 against $35,102,370.

Cost of sales was put at $62,756,882 for 1935 against $49,729,050 for 1934. Selling, general and administrative expenses were $2,821,077 against $2,685,756. For depreciation, $1,913,567 was assigned in 1935 against $1,865,873 in 1934. Cash available at end of 1935 was $2,040,717 against $8,888,744 the year previous; receivables were $9,562,244 against $5,042,035. Current liabilities were $4,278,149 against $776,915.

Lionel J. Noah, president, points out that when the 1935 year closed, the company had a "substantial" volume of forward business on its books. "Because of the general economic and political uncertainties with which we are faced," he states, "no prediction can be made at this time for the year 1936," but forward orders on hand on Jan. 1, 1936, he adds, were sufficient to insure a good run of machinery during the early months of the current year.

The financial report as issued contains a summary of activities since the present administration took hold in 1931. Much progress has been made and important objectives are being approached in the revision of policies, operations and facilities, states Mr. Noah. He points out the effective modernization program at the outset which has resulted in the installation of $6,429,918 worth of new equipment. A table showing change in working capital from $48,921,404 in 1930 to $37,938,299 in 1935 is appended giving the uses to which sums were put and indicating that none of the decrease was accounted for by operating losses. The report lists 28 mills as owned and operated.

Losses charged off for bad accounts reached a 10-year low point at $29,967 for 1935. This compares with the high of $689,997 in 1930, and 1926, 1927 and 1929 were each over $400,000.

Mr. Noah states to his stockholders, "Your management believes that the company is in a better position today than it has occupied for many years to take advantage of any increasing volume of business that may result from further improvement in the general economic situation or in the wool textile industry."

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Fabric Business Good

The word "allotment" has appeared again in the wool goods markets as mill agents are said to be applying this method of distribution to some lines of fall, 1936, overcoatings to prevent speculation in them. In general business has been brisk in advance of formal openings. The new price level will doubtless force a change in fixed retail price levels by chain clothiers next fall, though such a change, somewhat expected for spring, has not been announced. The rise in retail garment prices will be $1.50 to $5. Women's wear fabrics for spring are moving though retailers' spring presentations in some quarters have been delayed a week or two by inclement weather. As Easter is late this year (April 18), there is still time.

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Re-Works at Best Prices in Decade

After a dull January, the market for re-worked wool turned active in February. Soft woolens rose to 19c. while mixed rough worsted rose to 11c. Traders say that prices such as these have not been obtained since the post-war boom period. Skirted cloths are active; blue worsteds at 20c., brown at 22c. Lighted skirted cloth sold as high as 11c. in February which marks a 3½c. rise since the turn of the year.

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Wool Tops Lack Strength

Trading in wool tops through February was spotty and prices moved irregularly. The Exchange's spot tops which closed January at $1.11½, closed February at $1.10 after touching $1.12. On Feb. 28, most of the future contracts dipped under the $1.00.

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Trading Mostly Confined to Foreign Wools

Domestic wools have been quiet in the Boston market and most of the sizable transactions have taken place in foreign wools of the apparel class. The situation as far as domestic wools is concerned is that there are not many good, sizable lots in stock, and the prices placed on such lots do not coincide with the bids that buyers have been making. Some sales of Ohio and Pennsylvania delaine and finer fleeces were made in the range of 34 to 36c., grease basis. Prices for Australian fine merino wools have strengthened and spot lots of South American wools also moved upward.

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Unspecified Orders

The problem of unspecified or incomplete orders has puzzled portions of the wool textile industry at times. The American Woolen Co. is now using on its contracts the following clause which seems to clarify the situation:

"Mixtures: Unless the buyer specifies the pattern and style numbers for the above order on or before a date to be specified at the option of the company, the seller may make delivery of the above quantity, delivering one or more styles of the range indicated as the seller may elect, and such delivery shall constitute a good delivery under this order."

For piece dyes, the word color is used instead of the word styles, as in the reference to mixtures.

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"Millions of Sheep and Miles of Yarn"

The above is the title of a beautifully illustrated booklet published by James Lees & Sons Co., Bridgeport, Pa., which takes the reader on a pictorial tour through the company's mills, devoted to the production of Minerva yarns.

Japs to Style Worsteds for U. S. Trade

I. Fujimoto, export manager for wool products of the Mitsui interests, lately in New York, said that his mills will style fine worsteds particularly for the American market for the spring, 1937, season. He recognizes that their present styling is too much on the staple side, though satisfactory to them for results in the world market. As noted in TEXTILE WORLD'S story on Japanese worsteds last fall, they compete more with English than with domestic lines.

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Has Grand Time

Having just experienced one of the best years in a long time, it is small wonder that the annual banquet of the Boston Wool Trade Association, held Feb. 6, was quite an affair. More than 1,000 attended and it was admitted on all sides that the wool industry was a pretty good industry after all. The feature of the entertainment program was a skit entitled, "The Dream of the Weary Wool Man," in eleven scenes.

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Wool Price Trend

Key wool prices of March 2 and a month ago, contrasted with the last two years:

	Mar. 2 1936	Jan. 25 1936	Mar. 1 1935	Mar. 1 1934
Fine and fine med. territory	$0.88	$0.82	$0.63	$0.82
Ohio 3/8s	.43	.41½	.26½	.42½
Tops, fine 64-66s	1.18	1.12½	.89½	1.19
Average 3/8s	1.05	.99	.73	1.07½
High 1/4	.96	.91	.61	.97
Noils, fine	.72	.70	.52	.59
1/4	.58	.54	.40	.50
2-40s 60s wstd yarn	1.60	1.50	1.33¼	1.67½
8020 serge	1.95	1.95	.....	.....

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Activity of Industry

Current statistics on wool consumption and mill activity follow, the activity percentage being based on single 40-hour shift, 5 days per week. The figures are based on five-week periods.

	January	December
Wool consumed, clean equiv.		
Apparel wool	28,225,000	27,740,000
Carpet wool	7,690,000	7,440,000
Machinery activity		
Looms (50" wider)	113.0%	113.4%
Carpet looms	58.1%	56.3%
Combs	133.1%	133.8%
Worsted spindles	77.1%	90.6%
Woolen spindles	121.9%	120.2%

The above fragment was woven on this continent more than 500 years before white men discovered it. It was found recently in a mound in Le Flore County, Oklahoma. It is believed to be of buffalo hair and the colors are still bright. It is in possession of the Boston Museum.

WOOL IN THIS ISSUE

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Wool Industry Briefs

According to the statistical department of the N.A.W.M., it is estimated that spinners delivered nearly 2,500,000 lb. of hand knitting yarns during the last quarter of 1935.

Finished piece goods production for 1935 by 180 mills reporting to N.A.W.M. totalled 248,000,000 linear yards, of which 151,000,000 was men's wear, 76,000,000 women's wear and 21,000,000 auto cloths, linings, etc.

Contracting for wool on sheep's back has been in progress in the West. Traders estimate that over 30,000,000 lbs., or 8% of the clip was spoken for before mid-February.

Comprehensive educational chart presenting graphically the various steps in the story of wool from fiber to finished goods, produced by Associated Wool Industries in cooperation with textile experts, is available for use by home economics, clothing and textile teachers, extension workers, consumer groups, and training departments of retail stores. The chart is three by four feet.

Blanket lines were opened in mid-February with all-wool numbers priced from 15 to 20% above a year ago, and part wools unchanged or slightly advanced. American Woolen Co. prices range from $3.27½ to $13.20. The Staunton 3 lb. single is priced at $3.62½ against $3.05 last year; Royleton reversibles at $9.50 against $7.72½ and the 6-lb. camel hair at $13.20 against $12.75,

New York retail clothiers have been considering charging for alterations on all men's garments priced up to $35. This device may permit them to cover up the full advance in clothing prices.

First prize for the most effective packaging of a combined sales unit in the Irwin D. Wolf competition was awarded to Botany Worsted Mills, it was announced March 4 by the American Management Association, in New York. The entry was made by the DuPont Cellophane Co., Inc. Botany was the only strictly textile firm to win honors in the competition.

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Wool Mill News

Peerless Woolen Mills, Rossville, Ga., are considering early construction of two new one-story additions to mill, 140x400 ft. and 140x300 ft., respectively, to be used for expansion in spinning and weaving departments, in order noted. Cost estimated over $175,000, with equipment. The company is continuing its policy of sharing profits with its employees, recently distributing bonus checks totaling $35,000, which is about 5% of individual earnings for 6 months.

Hughes Woolen Mill, Camden, Me., plans early rebuilding of portion of mill, recently destroyed by fire, largely confined to the carding department.

Waterloo (N. Y.) Mills, Inc., have leased the Glenside Mill, Skaneateles, N. Y., to provide spinning facilities for increasing production schedules.

Chatham Mfg. Co., Winston-Salem, N. C., has taken over former property and plant of Inverness Mills, Walker Rd., and will occupy for expansion. Portion of mill will be used for the present for storage purposes, later to be converted for other mill service.

Oregon Worsted Co., Portland, Ore., has completed a 120x250 ft., two-story addition. The Foundation Worsted Co., a division of Wasbougal Woolen Mills, making tie linings may occupy part of the new building.

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Wool Financial Notes

Moosehead Woolen Mills, Inc., Corinna, Me., have been incorporated for $150,000. Norman F. Burrill of Corinna is president; Elwin R. Clark, treasurer; Leon W. Dresser of Portland, corporation clerk.

Farr Alpaca Co., Holyoke, Mass., reports net loss of $208,086 for the six months ended Nov. 30, 1935.

River Woolens, Inc., Leicester, Mass., have been incorporated to operate local mill, capitalized at $80,000. Robert S. Bowditch is president; and Stanley G. Barker, 340 Main St., Worcester, Mass., treasurer and representative. New company, it is said, will take over the **River Woolen Mills, Inc.,** at last noted place.

New Jersey Worsted Mills, Garfield, N. J., reports net profit of $87,722 for 1935, against net loss of $580,295 for 1934.

Cleveland (Ohio) **Worsted Mills Co.** reports net profit of $92,020 for 1935, compared with net loss of $245,949 for 1934 with sales for 1935 40% above 1934.

Hart & Foster, Emerald & York Sts., Philadelphia, Pa., has been organized to succeed to the wool goods finishing business of Jos. R. Foster & Sons, of 2nd and Clearfield Sts. The same executives will remain in charge including Stanley H. Hart, C. Arthur Foster, Frank Foster, J. W. Foster and Arnott R. Brown.

Edward C. Read & Son, Philadelphia, Pa. —Mill machinery and equipment of this company, now in receivership, was sold at public auction, Feb. 24, the bulk of purchases being made by used machinery interests.

A. R. Gibboney & Co., Reedsville, Pa., has been acquired in full by T. F. Gibboney and his sons, Ross and Ralph, who will operate the blanket plant in future. Company name will be changed at once to **T. F. Gibboney Co.**

Thornbury Worsted Mills, Bristol, Va., has been incorporated for $150,000, by the executors of Warner J. Steel, whose estate is the owner.

TEXTILE WORLD'S

Rayon & Silk Digest

WE ARE confident that the course of the use curve of spun rayon is going to be steadily and probably sharply upward in the future. However, we are also confident that the surest way to interrupt that progress is via the ballyhoo route.

There is a tendency in that direction just now—not from the manufacturers of the fiber, who are conservative in their promotion, but from people outside the industry and from fabric houses trying desperately to establish novelties. As we write, the air is full of announcements of new uses for spun rayon. . . . Spun rayon for shoes, spun rayon for knitted underwear, spun rayon in lace and velvet mixtures, and in trick new Cellophane combinations.

Many—if not all—of these outlets may be real possibilities. However, between the suggestion and the realization of any new use for such a fiber, there is a stage of technical development which must be bridged by work, not by words.

Unrestrained enthusiasm helps neither the staple-rayon producer nor his mill customer. As for the ultimate consumer, a little thought on the "black eye" which filament rayon got through too hasty development work might help in the upbringing of its younger brother—*Editor.*

Rayon Yarns Steady; Staple Demand Grows

Steadily increasing call for spun rayon and sustained interest in filament yarn marked the rayon yarn market at the opening of March. While the upward adjustment of 150-40 knitting yarns has helped to stabilize prices, market attention now is centered on what will happen to the 150-40 weaving yarns. Weavers rather look for an increase in price of this type and frankly express the hope that such an advance, if any, will come in April so as to permit them to allow for it in their fall program. Since the viscose process advance last December affected practically all yarns excepting the 150-40s, and since the 150-40 knitting yarn was later raised, the situation now is that the 150-40 weaving yarn is the only yarn not advanced and therefore it sells disproportionately below other denier. It is felt in some quarters that early action should be taken to adjust this differential.

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Tokio Upset Climax Of Dizzy Silk Drop

February was a merry-go-round sort of month for raw silk, the climax to which came when the sanguinary overturn of the Japanese Government brought a temporary halt to most activity. Prices at the start of February had continued their gradual downward trend, but this decline suddenly assumed aspects of a "break" as March approached, the new slump being due to seasonal drop in demand. The price of 13/15 white 78% fell from $1.91½ on Jan. 26 to $1.67½ on Feb. 26, a drop of 24c. The upset in Japan brought a further drop of 4 to 5c. in the last week of February, but this was followed by a slight rally. Finally, as February ended, the market was so bewildered as to what might finally develop in Japan that orders dropped to a negligible point and prices held fairly firm.

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Discuss Possibilities of Rayon for Mechanical Uses

The possibility of developing synthetic yarns suitable for use in automobile tires, airplane fabrics, belting, hose, etc., was discussed by A. B. Shearer and H. Hegan, of Courtaulds, Ltd., in a paper delivered at a recent meeting of the Institute of the Rubber Industry, England. The speakers pointed out that the dry strength of viscose has increased from 1.1 grams per denier with 15% elongation in 1907 to 2.1 grams per denier with 20% elongation in 1935 and that special yarns have been made with strengths from 2.9 to 4.8 grams per denier and elongations of 18 to 6.5%. Even greater improvements have been made in wet strength—0.35 in 1907 to 1.1 in 1935. It was stated also that while high tensile strength seems necessary in yarn for the mechanical uses mentioned above, other characteristics probably are of even greater importance. Resistance to the destructive action of heat and freedom from fiber slippage, are two of these desirable properties.

FLOYD Y. KEELER, of New York, a merchant with widespread brokerage activities has been elected president of the Commodity Exchange, of which institution the Silk Exchange is now a part. Mr. Keeler succeeds Jerome Lewine, of Henry Hentz & Co., in that post. Mr. Keeler is partner of Orvis Bros. & Co., a director of American Hide & Leather Co., and an officer of various commodity exchanges as well as the New York Curb Exchange.

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Paterson Drafts New Peace Plan

Provisions of a proposed labor agreement which, it was hoped, might bring a permanent end to the costly strikes in the Paterson, N. J., broadsilk industry, were made public at the end of February. The agreement was developed following some weeks of negotiations between the American Federation of Silk Workers, the United Textile Workers of America, the Silk Manufacturer's Association, various civic leaders of Paterson and representatives of the U. S. Government. Outstanding among the provisions of the pact are: elimination of the 4-loom system, establishment of the principle of work assignment, creation of an industrial relations board and provision for uniform minimum wage.

Drafts of the agreement went to the printer at the beginning of March and plans were to submit it to a vote of the workers and the manufacturers immediately. The Federation voted on Mar. 11, 594 against and 211 for in a light vote out of 5,000 eligible to vote.

In proposing elimination of the 4-loom system, the aim is to go forward on a gradual program of installing automatic looms, with each worker operating six machines. It is recognized that this represents a big financial problem for small mills, but it is also felt that installation of automatic looms finally is the only real solution. The principle behind the change is that it permits a lower piece work wage scale because by the improved efficiency, the worker's total weekly earnings will be increased.

Another significant provision specifies that the participating unions guarantee not to grant manufacturers in other silk districts any terms which would give them unfair competitive advantage.

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Humidity Requirements

Dr. J. L. Bitter, North American Rayon Corp., has called our attention to three typographical errors which occurred in the abstract of his paper on humidity requirements in rayon throwing, warping, weaving, knitting, and other operations, which appeared on pages 72 and 73 of our regular February issue. They are as follows: Under "Throwing" in line 8, "discoloration" should read "dislocation"; under "Weaving" in paragraph 4, line 4, "pick moisture" should read "pick up moisture"; under "Knitting" in line 22, "Fig. 5," should read "Fig. 7."

Fabric Season Late; Weather Blamed

Labor unrest in the dress industry, and the severe winter weather, acted as a brake on both silk and rayon fabric sales during most of February; at the end of the month, however, market interest quickened and there was a fair demand. Most dress houses were low on fabric stocks and this situation forced them to place some business. At the rayon end interest centered overwhelmingly on prints, and the second half of February found a good percentage of spring print business on the books.

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Silk Shipments Off

Silk deliveries in January, 1936, were moderately above those of December, but the curve turned downward in February, 1936, according to figures issued by the Commodity Exchange, Inc., New York. Key figures in bales follow:

	Imports	Approx. Deliveries	Stocks at Warehouses
Dec. 1935.	39,042	35,559	54,941
Jan. 1936.	40,565	38,995	56,511
Feb. 1936.	40,222	32,053	64,680

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Rayon Price Trend

Key rayon prices of March 2 and a month ago, contrasted with those of the last two years follow:

Viscose Process	Mar. 2 1936	Jan. 25 1936	Mar. 1 1935	Mar. 1 1934
75 denier (18-30 fils)	$0.90	$0.90	$0.92	$1.00
100 denier (40 fils)..	.79	.79	.80	.85
150 denier (40 fils)..	.57	.57	.60	.65
Acetate Process				
150 denier.....	.60	.60	.68½	.78
Cupra. Process				
150 denier (112 fils).	.65	.65	.70	.90

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Silk Price Trend

Key silk prices of March 2 and a month ago as contrasted with those of the last two years follow:

	Mar. 2 1936	Jan. 25 1936	Mar. 1 1935	Mar. 1 1934
Crack XX 13/15 white 78%.....	$1.72½	$1.90	$1.42½	$1.52
Tram, 5thd Japan 85%.....	2.38	2.62	2.30	2.37½
Tram Crack XX 78%.....	2.25	2.49	2.05	2.17½
60s-2, spun silk.....	2.90	2.97½	2.75	2.95

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Warp Sizing Research

Research on the sizing of warps of synthetic yarns, and on the glues, gelatins, and other materials used for such processing, is to be the second phase of the study of warp sizing that has been in progress at Massachusetts Institute of Technology, under the auspices of U. S. Institute for Textile Research, Inc., since last summer. According to the February issue of *Textile Research*, this work will be started just as soon as the basic study of starches, is completed. Dr. J. R. Katz, who has been the director of the study on starches, is completing the reports on the first phase of the research, and will thereafter be engaged with future work only on a consulting or advisory basis. He is succeeded as director by W. E. Yelland, who has been his assistant.

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Industry Briefs

DeVore Heads Credit Men—Weber DeVore of the United Piece Dye Works, Lodi, N. J., has been elected president of the Silk & Rayon Credit Association, succeeding Thos. J. Mangsen, of E. Gerli & Co. Other officers are: Nathan Lewis, of Kahn & Feldman, Inc., vice-president; Forrest D. S. Dayton, executive vice-president and secretary, and C. A. Brothman of Skenandoah Rayon Corp., treasurer.

Viscose Co. Gets Tubize License—With the issuance to Viscose Co. of a license to use the Singmaster and other delustering patents, the Tubize Chatillon Corp., owners of these rights now have licensed virtually the entire rayon industry on these patents.

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Rayon & Silk Mill News

Brown Silk Co., Oswego, N. Y., is settling affairs in New Jersey prior to removing remainder of equipment to Oswego, where 250 looms will be operated.

Wilton Barnes, High Point, N. C., and associates are organizing a new company to establish silk throwing mill. Building has been leased on East Commerce St., and will be remodeled. Equipment will be installed at early date.

Premier Silk Mills, Inc., High Point, N. C., recently chartered with capital of $250,000, have concluded arrangements for purchase of former Hillcrest Silk Mill, previously owned by Carolina Cotton & Woolen Mills, Inc., Spray, N. C., and will remodel and improve. New company will be headed by H. A. Knight, general manager, R. B. Terry and Earl N. Phillips, all of High Point.

Industrial Rayon Corp., Cleveland, Ohio, has plans for new two and three-story addition to mill, including extension in steam-power plant, and will ask bids on general contract at early date. It is estimated to cost close to $900,000 with equipment. Christian, Schwarzenberg & Gaede Co., Cleveland, are architects and engineers. Company is also considering construction of a new rayon mill on site soon to be selected in the South, estimated to cost a like amount.

General Ribbon Mills, Inc., Catasauqua, Pa., have approved plans for new two-story addition, 40 x 150 ft., to cost about $40,000, with equipment.

Viscose Co., Meadville, Pa., has plans for large addition to local plant to provide facilities for about 900 additional operatives, making a total working force of 2,000 persons at the plant. Building will begin late in March. Ballinger Co., Philadelphia, Pa., is architect and engineer. This acetate addition involves reported investment of $1,000,000.

Du Pont Rayon Co., Ampthill, Richmond, Va., has awarded contract to Bethlehem Steel Co., for structural steel framing for new one-story addition. It is reported to cost over $100,000.

Roanoke Weaving Co., Inc., Vinton, near Roanoke, Va., recently chartered by J. Spencer Love, of Greensboro, N. C., and associates, with capital of $100,000, has acquired tract of land near Tinker Creek, It is proposed to begin erection of rayon weaving plant this month.

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Rayon & Silk Financial

Chaminade Velours, Inc., Seymour, Conn., recently chartered, has started operations in the Tingue Textile Corp. mill on De Forest St., with a five-year lease and renewal option, to manufacture automobile upholstery, furniture plushings, transparent velvets, etc. C. J. Amm, president of C. J. Amm Co., Inc., New York, is president.

Sidney Blumenthal & Co. reports consolidated net profit for 1935 of $610,215, against a net loss for 1934 of $1,031,483.

Belding Heminway Co. reports profit of $542,536 for 1935, its largest return since 1926; this compares with a net profit of $495,984 in 1934. The firm's 1935 sales totaled $6,010,837, against $5,317,395 in 1934.

Mallinson Asks Reorganization—Listing assets of $2,234,005 and liabilities of $2,630,000, including capital stock liability, H. R. Mallinson & Co., Inc., silk manufacturers, has filed a petition in the Federal Court, New York, to reorganize under Section 77b of the Bankruptcy Act.

Tubize Chatillon Corp. showed a net income of $578,552 in 1935, against a net loss of $293,403 in 1934. The company also showed an improved current position in the balance sheet; during 1935 it liquidated $1,200,000 owed to banks and retired $528,000 bonds.

Ridgewell Silk Mills, Inc., Beacon, N. Y., have been organized with capital of 100 shares of stock, no par value, to operate a local mill. New company is represented by M. Carl Levine, 535 Fifth Ave., New York.

Premier Silk Mills, Inc., High Point, N. C., has been chartered. Authorized capital is $250,000, with $400 subscribed. Incorporators: R. B. Terry, J. P. Rawley, Earn N. Phillips, and H. A. Knight.

Stowe (Pa.) Hosiery Mills, Inc., has been organized to take over and continue the former Ajax Hosiery Mill there. Operations will start with 125 employees. Samuel I. Burd, 1211 Chestnut St., Philadelphia, Pa., is one of the principals.

West Park Throwing Co., Inc., Scranton, Pa., will be sold at auction March 23 by order of the Court.

Aronsohn & Hirschfeld Silk Mill, Morristown, Tenn., has been purchased by the Minjoy Mills Corp., which will operate the plant and will enlarge same in near future. J. S. Gerson, who has been associated with the mill for some time, is vice-president.

Marion, Va.—Chamber of Commerce has negotiations under way with a manufacturer of broadsilk for establishment and operation of a local mill.

Canadian Celanese, Ltd., reports net profit for 1935 of $1,602,960, compared with $1,504,709 in 1934.

TEXTILE WORLD'S

Knit Goods Digest

HERE'S a statistic or two from the 1935 record in hosiery and underwear which rate some printer's ink:

1935 hosiery shipments set a six-year record (women's full-fashioned broke *all* records); production of hosiery was just moderately in excess of sales. 1935 underwear shipments rose to pre-depression levels—and, believe it or not, were 8.8% above production!

And apparently, the industry—or at least parts of it—did not merely trade dollars. As indicated in financial reports elsewhere in this Digest, the general trend is toward more profitable operation.

As for the moral, the National Association of Hosiery Manufacturers supplies that by cautioning mills not to expect the big 1935 gains to be duplicated in 1936, and therefore to "proceed with care" on output.—*Editor.*

Silk Break Softens Hosiery Prices

The satisfactory showing of the hosiery industry for 1935 does not appear to be carrying forward into 1936. A trend toward lower prices of full-fashioned became evident in mid-February and appeared to be pronounced at the month's end; the unbranded lines followed the branded lines in a cut of 10 to 25c. Continued raw silk weakness, especially the sharp silk slump in the last week of February served to accentuate the slide. The National Association issued a strong statement, emphasizing the good showing for 1935 and pointing out that the present slack demand is nothing more than seasonal. "Insist upon prices which cover costs and return a profit" was the keynote of the Association message.

At the end of February there were signs that rumor was playing a part in the scare about general reductions. One leading manufacturer sharply denied reports that he had cut prices; the belief was expressed that the price cuts were less widespread than the trade was being led to believe.

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Underwear Sales at Pre-depression Level

Underwear production and shipment during 1935 showed a decided improvement over 1934, according to figures made public last month by the Underwear Institute. The total output of 1935 was 39,735,000 doz., according to preliminary figures. The 1935 shipments, 7.6% above 1934, totalled 40,208,000 doz., putting them 8.8% ahead of production—a fact which evoked especial satisfaction in the industry. The preliminary figures also show a gain of 6.8% in sales volume over 1934. Unfilled orders at the end of 1935 were 33% greater than at the end of 1934.

The excellent showing for the year brought the industry back to pre-depression volume; it came somewhat as a surprise, and was due largely to the strong demand in the final quarter; the volume of business for December, 1935, was 25% above the same month in 1934.

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1935 Hosiery Sales Set 6-Year Record

Hosiery shipments during 1935 set a six-year record, being the highest since 1929, it was shown in figures made public last month by the National Association of Hosiery Manufacturers. The grand total of shipments in 1935 was 111,268,099 doz. pr., an increase of 7,835,051 or 7.5% over 1934. This increase was shown in all classes except women's seamless rayon and cotton, boys' socks, misses ribbed goods and cotton bundle goods. Womens' full - fashioned showed the greatest rise; indeed, they totaled 34,269,061 doz. pr., which was an all-time record. Women's seamless silk hosiery shipments in 1935 rose more than one-third above their 1934 total. Total output all classes for 1935 was 111,522,434 doz. pr., or slightly above the shipment figure.

The Association has made a statement that manufacturers must not expect 1936 to show as great an increase as did 1935, and must therefore produce cautiously.

Thun and Janssen, 70, Feted by 8,000

A birthday party attended by 8,000 guests was the chief feature of ceremonies held at Reading, Pa., last month in honor of Ferdinand Thun, president, Berkshire Knitting Mills, and Henry Janssen, president Textile Machine Works. Both men, who have been business associates since 1892, passed their 70th birthday during the month. Climaxing many festivities a big party at which all the employes and many others were present, was held Feb. 12. Mr. Thun and Mr. Janssen were presented with deluxe editions of "Partners," a volume telling the history of the 44 years they spent in developing the two companies. The books are encased in a solander case stamped in gold with an all-over pattern of knitting machine parts.

Andrew M. Grebe, spokesmen for the employees, praised the social service of the honor guests. Then the volumes of "Partners" were presented by Earl Moyer, Lucille Wiater and Jeanette Castor, representatives of Textile Machine Works, Berkshire Knitting Mills and Narrow Fabrics Co., respectively. These three are the youngest employees, The two honor guests were escorted to the platform by their oldest employes in time of service, including Peter Moos and Carl F. Meyer, who have served for 40 years, and Wm. Moyer and Alvin Brumbach, who have served for 38 years. Messrs. Thun and Janssen were featured on the Personal Page of *Textile World* for February, 1936, and a sketch of the career of each given.

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Fall Outerwear Moves

Mill representatives in New York spoke optimistically of the outlook for fall shakers and other outerwear staples this month. Buyers showed more confidence and have placed a good quantity of advance orders. The novelty styles are still slow-moving.

Statistical Position of Hosiery in 1935

Type of hosiery	1935 Shipments (dozens of pairs)	Per cent increase or decrease of 1935 shipments over 1934	Per cent increase or decrease in average stocks in 1935	Stock Turnover 1934	Stock Turnover 1935
TOTAL, all types	111,268,099	+ 7.6	+ 5.4	5.8	5.9
Full-fashioned, total	34,480,611	+ 9.3	+11.8	7.1	6.9
Women's	34,269,061	+ 9.4	+12.6	7.2	7.0
Men's	211,550	+ 1.0	—18.7	1.8	2.2
Seamless, all types	76,787,488	+ 6.8	+ 3.3	5.4	5.6
Women's total	11,047,405	+ 1.1	— 6.8	5.7	6.2
Silk	3,364,140	+34.9	+14.3	5.9	6.9
Rayon	3,846,658	—11.1	— 3.7	6.5	6.0
Cotton	3,656,961	— 7.7	—20.7	5.1	6.0
Wool	179,646	+21.1	—12.1	3.7	5.1
Men's total	34,585,199	+ 8.0	+ 6.0	5.9	6.0
Silk	1,347,112	+17.7	— 9.4	2.7	3.5
Rayon	16,880,017	+ 6.6	+15.8	7.0	6.4
Cotton	14,558,310	+ 6.5	+ 2.7	6.2	6.4
Wool	1,799,760	+29.3	—11.1	2.8	4.1
Socks, Boys'	736,069	— .5	+35.4	5.4	4.0
Infants'	1,345,205	+ 8.7	+ .3	3.7	4.0
Children's flat ⅚ and ⅞	1,223,055	+29.0	—13.3	6.5	9.7
Ribbed, Misses'	3,063,381	—25.8	—37.5	3.1	3.7
Infants'	1,247,063	+ 7.7	—14.6	5.0	6.3
Golf Hose	2,663,598	+10.1	—17.7	7.3	9.8
Anklets, Infants'	4,100,946	+21.0	+11.7	4.6	5.0
Other	10,000,117	+18.7	+38.6	5.5	4.7
Bundle Goods, Cotton	4,060,657	— 4.8	+15.7	5.5	4.5
Woolen	2,714,793	—22.3	+ 2.0	5.1	6.2

National Association of Hosiery Manufacturers

Financial Reports

Financial reports of leading knit goods manufacturers for 1935 as against 1934 show earnings as follows:

	1935	1934
Munsingwear, Inc.	$327,675	$20,876*
Bradley Knitting Co.	195,615	64,893
Propper-McCallum Hosiery Co.	283,620*	187,992*
Gotham Silk Hosiery Co.	423,810	274,745*
Durham Hosiery Mills	76,093*	47,905
Davenport Hosiery Mills	130,184	57,988
Rollins Hosiery Mills, Inc.	62,676*	38,093*
Phoenix Hosiery Co.	291,147	82,466
Real Silk Hosiery Co.	374,830	369,282*
Penmans of Montreal	295,366	274,591
Monarch Knitting of Can.	27,345	135,063

*Loss.

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Industry Briefs

On Monday, April 20, opening day for the Knitting Arts Exhibition, Philadelphia, the American Federation of Hosiery Workers will hold its annual convention to plan a big union drive in the South.

Hanes Hosiery Mills Co., Winston-Salem, N. C., has gone from a 40 to a 50-hour week. Taylor R. Durham, secretary of the Southern Hosiery Manufacturers Association, called the action "unfortunate." Answering the criticism, James N. Weeks, vice-president of Hanes, issued a 6-point statement, emphasizing that Hanes' labor standards had always been above NRA and that longer hours by competitiors forced the firm in self-preservation to do likewise.

That Southward Trend—As further confirmation of the Southward trend of the full-fashioned hosiery industry, Nolde & Horst Co., Reading, Pa., has purchased the Read Hosiery Mills, McMinnville, Tenn. Hans Nolde will expand the organization, raising the 200 personnel to 500.

"When We Are Rebated—"—Manufacturers of balbriggan underwear now use the following clause on undelivered portions of orders taken before Jan. 6, it is announced by the Underwear Institute: "We are not spinners. We buy our yarns. We have paid the processing tax on this merchandise. When we are rebated, we will revise this invoice accordingly."

An investigation of the growing imports of hosiery from Japan, with particular regard to reports that these imports include partially processed full-fashioned hosiery which comes in duty-free, has been instituted by the National Association of Hosiery Manufacturers.

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Knitting Mill News

Alabama Hosiery Mills, Inc., Decatur, Ala., plans an expansion program for the Decatur plant to cost $250,000 to double the floor space. There will be an extension to the present building 210 x 105 ft. Air conditioning contract has been let to Parks-Cramer Co. New equipment will cost over $175,000.

Cooper-Wells Co., Decatur, Ala., is constructing an addition to the mills there that will represent an expenditure of about $50,000.

Interwoven Stocking Co., New Brunswick, N. J., has acquired mill of Charles H. Bacon Co., Morristown, Tenn., and will equip for new branch plant, to be placed in operation early in the spring. About 300 new knitting machines and auxiliary equipment will be installed.

Sangamon Knitting Mills, Cohoes, N. Y., are constructing a new addition vide 1,200 sq.ft. for manufacturing.

R. & G. Knitting Mills, Inc., 22-26 West Thirty-second St., New York, N. Y., have approved plans for improvements in property recently acquired at Williamsport, Pa., for new mill. Building totals 55,000 sq.ft. floor space, and was formerly used by Williamsport Street Railway Co. Cost will be close to $60,000, with equipment. Murray Klein, 65 Court St., Brooklyn, N. Y., is architect.

Baker-Cammack Corp., has leased the office building of Aurora Cotton Mills, Burlington, N. C., and will move its finishing unit and knitting department from Graham, N. C., and the Graham plant will be closed. Additional new equipment will be installed at Burlington; the whole program to cost $100,000.

Thornton Knitting Co., Denton, N. C., has installed 40 machines in the Rogers hosiery building to make half hose.

Chipman-LaCrosse Hosiery Co., East Flat Rock, N. C., has occupied its new plant in the remodeled Wetmur building on Allen Street in Hendersonville, N. C., having installed 400 knitting machines on second floor and high-speed looping machines on first floor. Finishing will be done at the main plant.

J. A. Cline & Son, Hildebran, N. C., have constructed a one-story addition, 165 ft. long, which will house knitting and looping machinery.

Black Hosiery Mill, Midland, N. C., has been established in the P. J. Hartsell Building. Sam Black, formerly night superintendent of Hoover Hosiery Co., Concord, N. C., is head of the new concern, which has begun operations with 20 knitting machines.

Stanfield (N. C.) **Hosiery Mills** has constructed a new addition designed to house new equipment including 30 knitting machines.

Barnett Hosiery Mill has been organized at Taylorsville, N. C., and will specialize on children's anklets. J. H. and F. C. Sherrill are the owners.

Sterling Silk Glove Co., has moved 100 knitting machines from its branch at Schuylkill Haven, Pa., to its plant at Allentown, Pa. The entire third floor of the branch formerly used as a knitting department will now be used as their cutting department and their finishing department has been enlarged.

Lucky Strike Hosiery Co., Philadelphia, Pa., has secured a location in Fitzgerald, Ga., and will begin operations there as soon as the building can be put into readiness and machinery installed.

Ricks Hosiery Mill, Greeneville, Tenn. —Robert Price, president and C. A. Rocks, New York, general manager, started up about March 1 in a newly equipped building with 100 machines. Local capital is interested and 125 people will be employed.

Richard Edge, Lenoir City, Tenn., has established a knitting mill at Charleston, Tenn., in a three-story brick building. About 50 knitting machines are operated. Mr. Edge was lately manager of the Charles H. Bacon & Co. hosiery mills in Tennessee.

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Knitting Financial

Hyatt & Duff Co., Meriden, Conn., a new firm headed by I. Robert Hyatt and A. W. Duff, has leased part of the Handel Mfg. Co. plant on East Main St. to manufacture knitted sports wear. Mr. Duff was formerly with the Winship Boit Co., Wakefield, Mass., and Mr. Hyatt with the American Hosiery Co., New Britain, Conn.

Kemper Knitting Mills, Inc., 1530 Armitage Ave., Chicago, Ill., has been chartered with a capital of 200 shares of stock, no par value, to operate a local knitting mill. Edward H. and Frank H. Kemper head the new organization.

Brooks Hosiery Mill plans to establish a plant at Pocomoke City, Md.

Harris Silk Hosiery Co., Springfield, Mass., in receivership is considering plans for reopening according to Frederick Scarborough, receiver.

St. Johnsville, N. Y.—The old Reaney mill has been leased in large part to a New York silk and rayon underwear manufacturing company.

Knitwear Mills, Inc., Troy, N. Y., has been incorporated with 200 shares of stock.

Norwood, N. C.—A new hosiery mill will be established here by J. V. Barringer and several associates.

Euclid Knitting Mills, Inc., Cleveland, Ohio, have been organized with capital of 250 shares, no par, to operate knitting mill, by Milton H. and Albert J. Sanders, Guarantee Title Building, Cleveland.

Best Knitting Mills has been organized in Philadelphia, Pa., with headquarters at 173 West Huntingdon St., under the management of Abe Freed and Sol Shapiro.

Noble Knitting Mills have been organized in Philadelphia, Pa., with headquarters at Darien St. and Noble Ave., under the management of David Greenberg and Solomon Greenberg.

Stowe Hosiery Mills, Inc., Stowe, near Pottstown, Pa., lately organized by Samuel I. Burd, 1211 Chestnut St., Philadelphia, Pa., and associates, has arranged for purchase of former plant of Ajax Hosiery Mills at first noted place, recently disposed of at a public sale. Some equipment is included in the acquisition. Plant will be placed in operation late in March.

Aycock Hosiery Mills, South Pittsburg, Tenn., is faced with petitions in voluntary and involuntary bankruptcy. Debts total $200,175, while assets as listed total $355,000.

TEXTILE WORLD'S

Processing Digest

OF THE recent innovations in textile processing one of the most important potentially is the anti-crease finish for cottons and rayons. The list of companies applying this type of finish is growing steadily, and the volume of anti-crease fabrics produced is showing a corresponding gain.

Unfortunately, the term "anti-crease" and the various trade names under which anti-crease fabrics are sold have no definite meaning. That is, there are no specifications for anti-crease fabrics and no standard methods for determining the resistance of textiles to creasing and crushing. We suggest, therefore, that there is an excellent opportunity for the American Association of Textile Chemists & Colorists to render a real service both to the finishing industry and to the consumers by developing such tests and specifications.—*Editor.*

Growth of Japanese Finishing Industry

Rapid expansion of the textile finishing industry of Japan is reported in a dispatch from our correspondent in that country. Value of products has risen from Yen 61,000,000 in 1920 to Yen 135,000,000 in 1935. During the same time, small-scale, handicraft operations have been replaced largely by large-scale, mechanical operation. One plant in Osaka, for example, has a capacity of 1,000,000 pieces a month. In 1920 Japan had 1,600 finishing plants, only 50% of which were mechanized; in 1933 there were 1,800 plants, over 90% of which were mechanized. In the latter year about 64,000 workers were employed in the Japanese bleaching, dyeing, and printing industry. Production now totals around 3,000,000,000 yd. annually, of which a little over 2,000,000,000 yd. is accounted for by bleached goods, while the remainder, is fairly evenly divided between dyed and printed fabrics. The most important fabric from a volume standpoint is calico, which accounts for nearly one-half of the total production. Other fabrics processed in large quantities include shirtings, sheeting, drill, sateens, poplins, crepes, etc. Some 70 to 80% of the production is exported. A good idea as to the growth of the industry can be obtained from the following table:

Year	*Yen*	*Year*	*Yen*
1920	61,220,890	1927	104,417,895
1921	90,637,350	1928	97,938,926
1922	80,795,546	1929	107,290,279
1923	90,617,140	1930	88,412,043
1924	83,341,053	1931	71,547,424
1925	97,216,816	1932	110,460,719
1926	101,198,065	1933	134,722,983

Note—At the current rate of exchange the yen is equivalent to about 30c.

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New Dyes

Imperial Chemical Industries, Ltd., London, England, has announced an entirely new range of direct-dyeing dyes for application to cellulose acetate. An outstanding property of this class of colors, which are known as the Solacet dyes, is that they are water soluble. Other characteristics listed by the manufacturers are good penetrating qualities, freedom from marking during steaming, and dischargeability. The first two dyes of this range to be introduced are Solacet Fast Scarlet BS and Solacet Crimson BS. Additions to the series will be made available at short intervals. It is reported that I.C.I. is making arrangements with E. I. du Pont de Nemours & Co. for the sale of the Solacet dyes in this country.

General Dyestuff Corp. announces the following new products: Fastusol Yellow LRTA, a direct dye producing reddish yellow shades of very good fastness to light; Diazo Rubine BH, a developed color, producing full bordeaux shades when diazotized and developed with Developer A and discharging to a pure white with Rongalite C; and Katigen Bordeaux BYA, a sulphur dye yielding claret shades of good fastness to washing and moderate fastness to light.

E. I. du Pont de Nemours & Co., announces Acele Red RP, an acetate dye giving medium red shades of good general fastness.

National Aniline & Chemical Co., Inc., announces Erie Speck Dye Red SW, a product for covering vegetable fibers in a cold bath and leaving animal fibers and cellulose acetate unstained.

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Organic Alkali Has Unique Properties

Rohm & Haas Co., 222 West Washington Sq., Philadelphia, has announced the commercial production of Tetrone B, a staple, non-volatile organic alkali, having many properties of interest to textile men. This product, which is described as a tetra-substituted ammonium hydroxide, appears to be unique in its ability to dissolve cellulose without the intermediate formation of an ester or an ether. It also acts as a solvent for dyestuffs, forming salts which have altered and modified solubilities in solvents or aqueous solutions. As a strong alkali, Tetrone B dissolves many metal oxides and metals; in analytical work, its use is of particular interest, since it leaves no residue on ashing.

As a base, it is of interest for the saponification of oils, fats, waxes, and gums. Salts which have been prepared are the carbonates, phosphates, resinates, silicates, xanthates, and stearates. These salts show distinct properties and apparently have many potential applications. In synthetic work the new compound is said to be of special value in the preparation of accelerators, antioxidants, detergents, and pharmaceuticals.

In the textile field, it has been found that the Tetrone salt of many of the vat and naphthol colors is more soluble than the sodium salt. The manufacturers have found that when Tetrone B is added to a caustic Lycopon reducing bath, many vat colors—including some of the Indanthrenes—can be stripped. When diluted with 25 to 50% of water, the new compound acts as a mercerizing agent, giving rapid mercerizing and quick shrinkage. Added in low concentrations to caustic soda mercerizing solutions, it is said to have a wetting action, but not to increase shrinkage. Tetrone B is available as an aqueous solution and can also be supplied in an organic solvent, such as alcohol. The molecular weight of Tetrone B is over 150. Quaternary ammonium hydroxides of higher molecular weight and altered properties are also available.

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Acquires Old Print

A sample said to be from the first bolt of calico imported into Providence, R. I., from England, by Captain Russel, of Providence, has recently come into the possession of the Social Advisory Bureau, 116 Market Street, Newark, N. J. The fabric is described as having a black background with red flowers hand colored by the discharge method.

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Association Notes

New York Section, A.A.T.C.C., held its monthly meeting Feb. 28, at the Chemists Club, New York, the chief speaker being Dr. Karl T. Steik, director of Research, National Oil Products Co., who discussed "Technical Emulsions."

Piedmont Section, A.A.T.C.C., held its winter meeting Feb. 8 at Greenville, S. C., the principal address being made by Dr. M. R. Trabue, director of education at the University of North Carolina, on "Psychological Analysis applied to employment problems." Other speakers were George Searell, on "Throwing of Silk and Rayon Yarns"; and Wesley J. Pickens, on "Dyeing of Hosiery."

Salesmen's Association of the Textile Dyeing & Printing Industry last month made known that plans had been formed for an intensive drive for associate members to be recruited from the dyeing establishments and dye manufacturing industries.

Screen Printers Group of the Fashion

Originators Guild has been formed, the purpose of which is to strengthen relations between screen printers and their customers and to aid in further protection of original designs. The group includes seven of the foremost screen printing firms.

At a meeting of the Manufacturers Association of Pennsylvania, held last month in Philadelphia, George T. Moore, Globe Dye Works, Philadelphia, spoke on the subject "Color Sells the Goods." In his talk Mr. Moore outlined the history of the dyeing industry, pointed out the part of the chemist in developing fast-dyed fabrics, and emphasized the importance of color in selling textiles.

Spring meeting of the Piedmont Section of the American Association of Textile Chemists & Colorists will be held either April 18 or 25 at Greenville, S. C., according to Chester L. Eddy, chairman. A meeting held at Greensboro, N. C., early in February drew an attendance of 175. The Southeastern Section, meeting Feb. 22 at Columbus, Ga., also reported an excellent meeting with good attendance.

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Du Pont Establishes Fellowships in Chemistry

With the aim of aiding students to pursue graduate work in research in chemistry, E. I. du Pont de Nemours & Co., has appropriated the necessary funds to permit creation of fellowships in 12 universities and colleges for the academic year 1936-1937. The institutions are: for chemistry or chemical engineering—University of Michigan and Massachusetts Institute of Technology; for chemistry—University of Chicago, Cornell, Harvard, Johns Hopkins, Ohio State, Princeton, Yale, Illinois, Minnesota, and Wisconsin.

In announcing the plan, the du Pont company points out that there is an increasing demand for research chemists and a definite shortage in this type of worker, and therefore the company wishes to encourage promising students in the field.

New cotton prints featured among others in book of samples recently distributed by Cotton-Textile Institute

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Industry Briefs

"Bluebonnet Blue" Honors Texas—As a tribute to the Centennial of the State of Texas, being observed this year, The Textile Color Card Association announces a new color, "Blue Bonnet Blue" which is described as "reflecting the clear violet tint of the State flower of Texas." The Texas Centennial Committee will give the new color wide publicity throughout the country in tie-ups with fashion shows, store displays, and at important social events.

Anti-Crease Licenses—It is announced that the Tootal, Broadhurst, Lee Co. has issued licenses to Bradford Dyeing Association and to the Waldrich Co. to operate under Tootal's American anti-crease patents.

Hosiery Finishers Agreement—An agreement between the hosiery dyers and finishers of the Philadelphia and the American Federation of Hosiery Workers has been reached and now is effective, it is announced. The agreement takes the place of the individual agreements signed at the time of the strike last fall.

Ask Three 8-hour Shifts—Vice-chancellor W. M. Lewis of Paterson has been asked by five textile printing firms having 750 employees to rule that their agreement with the Federation of Silk & Rayon Dyers of America permits them to operate their plants 24 hours per day on three 8-hour shifts.

New Service Bureau—To aid retailers and their sources of supply in selling Sanforized-shrunk merchandise, a new bureau, known as the Chevron All-Guard Service Bureau, was opened last month in New York. The service is free and the bureau is sponsored by Sanforized-shrunk aiming to quicken interest in a new line of fabrics known as All-Guard Guaranteed Washable, Sanforized-shrunk, and Rinso tested.

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Processing Plant News

Foster & Stewart Co., Norwalk, Conn., which recently sold its local awning finishing plant is planning to reorganize and establish a new plant.

Art-Craft Dyeing & Finishing Co., Paterson, N. J., recently organized as an interest of **Fiory Dye Works, Inc.**, 1450 Broadway, New York, N. Y., with capital of 1,000 shares of stock, no par value, has purchased former mill of **Synthetic Dyeing & Printing Co.**, Paterson, and will remodel and equip.

Burlington (N. C.) **Dyeing & Finishing Co.**, has installed an Inversand zeolite water softener. The company was incorporated Feb. 26, for $100,000.

Southern Yarn Converters, Inc., Gastonia, N. C., recently organized, has secured mill property at East Gastonia, and will begin production at early date for cotton and rayon yarns. T. A. Henry, Sr., and Jr., are president and treasurer, respectively. R. J. McGhee, formerly of Lincolnton, N. C., is manager.

Southern Mercerizing Co., Tryon, N. C.; now controlled by China Grove (N. C.) Cotton Mill Co., is installing new machinery and plans are being completed to increase output from 1,000,000 to 5,000,000 lb. The company will operate as the Southern Mercerizing Co., with paid-in capital of $200,000. The old plant and cottages will be remodeled.

Kenyon (R. I.) **Piece Dye Works**, recently organized, has acquired former local mill of **Eastern Finishing Works, Inc.**, more recently held by Columbia Narrow Fabric Co., Shannock, R. I., and will remodel and improve at once for new plant for dyeing and finishing of silk and rayon piece goods.

United States Finishing Co., Providence, R. I., has completed construction of new one-story dye house on Charles St., for which general contract was let recently to Brien Building Co., Woonsocket, R. I.

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Processing Financial

Middlesex Bleach, Dye & Print Works, Somerville, Mass., is liquidating after a business career of 135 years dating from 1801. Roy H. Bradford is liquidating agent.

Millbank Finishing Corp., Lodi, N. J., is in the hands of E. O. West and Richard Stephenson as permanent receivers.

United Piece Dye Works, Lodi, N. J., report net loss for 1935 of $2,348,791, compared with net loss for 1934 of $1,870,517.

Sanco Piece Dye Works, Paterson, N. J., has been organized with capital of 1,000 shares of stock, no par value, to operate a local dye and finishing mill. New company is represented by Meyer W. Stein, 64 Hamilton St., Paterson.

Boyd & Co., Inc., New York, N. Y., have been organized with capital of $35,000, to operate a dye and finishing mill in this district. Incorporators include Irwin D. Lester and Louis Jackson, both 17 East 45th St., New York.

Edison Piece Dye Works, Inc., New York, N. Y., recently organized with capital of 100 shares of stock, no par value, plans operation of a dye and finishing mill in this district. Incorporators of new company include Irving Litton and Max Goldner, both of 1 Madison Ave., New York.

Imperial Dye Works, Inc., has been chartered in Altoona, Pa., with a capital of $10,000. Principals of the new concern are C. H. Moore, S. R. Moore, and D. B. Tobias.

Bradford Dyers Assn., London, England, reports net loss for 1935 of £66,347, against net loss of £9,332 for 1934.

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TEXTILE WORLD'S

Engineering Digest

ONE of the important events in the power field is the Midwest Power Engineering Conference. This year it will be held at the Palmer House, Chicago, April 20-24. Sponsored by the local sections and regional divisions of several important scientific societies, and presenting a program of marked diversity, this conference should interest all men connected with this field in any way.

It beckons to the power plant engineer in a textile plant.
—*Editor.*

Power Engineering Program Nears Completion

The 1936 Midwest Power Engineering Conference, scheduled to be held April 20 to 24 at the Palmer House and International Amphitheater, Chicago, will receive, during its twelve sessions, about 35 technical papers by authorities in various fields of engineering. These papers will discuss topics such as power-plant buildings and dams, electricity, power economics and transmission, coal and other fuels, insulation and refrigerants, diesel power, power used in air-conditioning, etc.

Engineers present will have plenty of time to attend the Midwest Engineering & Power Exposition, scheduled for the same period. Afternoon sessions of the conference will be held in the Amphitheater, also the location of the exposition. Frank D. Chase is president of the conference and George E. Pfisterer is manager of the exposition.

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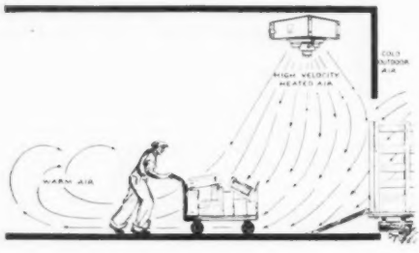
Method of Heating Outside Air Entering Open Doorways

For years, the problem of heating economically and effectively the entrances to mills, warehouses, garages, shipping and receiving departments, etc., has been a constant objective, as well as a worry, to the heating engineers who have concentrated on the problem. Since it is practically impossible to stop cold air from entering such large openings, the most economical and practical method of overcoming this unhealthy and uncomfortable condition is to warm the air as it enters the door.

One of the simplest ways to accomplish this is to suspend a specially designed type of heater from the ceiling, just inside and directly over each door opening. This heater is constructed so as to drive at high-velocity a conical column of heated air directly into the teeth of the frigid gale as it enters, thus warming the air as it moves into the building. A typical unit consists of a combined electric and steam directional heater, compact in size and simple in construction. A powerful fan, driven by a small motor, draws a large volume of air through a copper coil (heated from existing steam lines), and drives it at high velocity in a downward direction. Such a device should be adjustable to take care of maximum and minimum exposure, allowing the heat to be reduced without affecting air volume and velocity, which give the penetrating effect. Also, it should be adjustable to correspond with the amount of available steam.—J. M. HANCOCK.



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Purposes and Rules of Air Research Group Made Public

Air Hygiene Foundation of America, Inc., Thackery Ave. & O'Hara St., Pittsburgh, Pa., recently issued Circular No. 1, describing the purposes and regulations of the organization. H. B. Meller is managing director. Purposes of the Foundation are as follows:

"Air Hygiene Foundation of America, Inc., has been formed by a large group representing various industries, with headquarters at Thackeray Ave. and O'Hara St., Pittsburgh, Pa. The purposes of this organization are to conduct investigations of and to stimulate research on problems in the field of air hygiene and to gather and disseminate factual information relating thereto. It will also cooperate with and assist other agencies active in this field and will collaborate in the coordination of such research efforts. A comprehensive investigation has been begun at Mellon Institute of Industrial Research, Pittsburgh, under support of Air Hygiene Foundation of America, Inc., in which the hygienic, technologic, and economic aspects of air contamination, especially by dust in the industries, will be studied."

Philadelphia Foundrymen Hear D. M. Curry

The Philadelphia Chapter of the American Foundrymen's Association, on Feb. 7, heard a discussion of modern non-ferrous foundry practice by D. M. Curry, of the Development & Research Division of International Nickel Co., Inc., who for many years was supervisor of all non-ferrous foundry production for Ford motor interests. Emphasis was placed on casting non-ferrous alloys such as the nickel bronzes and nickel silvers.

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Heating & Ventilating Exposition Post Mortem

A check-up of the Fourth International Heating & Ventilating Exposition showed that 44,695 visitors came to see the products shown by over 300 exhibitors at Chicago late in January.

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Westinghouse Summarizes Engineering Achievement

Among the many interesting pieces of literature put out by Westinghouse Electric & Mfg. Co., in commemoration of its Golden Jubilee, is a 56-page illustrated booklet summarizing recent engineering developments and progress in all industries. One section is devoted to the textile industry. Copies are limited and the book is not for general distribution.

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Engineering Briefs

Master Mechanics Division of the Southern Textile Association will hold its spring meeting April 10 at Hotel Franklin, Spartanburg, S. C. L. M. Kinkaid, master mechanic, National Weaving Co., Lowell, N. C., chairman, announces that an excellent program is being prepared.

Mathews Conveyor Co., Ellwood City, Pa., announces that it has received the official "Award of Merit" issued by the Rice Leaders of the World Association "for high character and worthwhile achievement."

Hartford (Conn.) **Chapter** of the American Society for Metals was addressed last month on "Carburizing" by Henry W. McQuaid, of Republic Steel Corp. Mr. McQuaid is well known in metallurgical circles as co-originator of the McQuaid-Ehn grain size test.

Over 500 engineers, salesmen, and dealers of Carrier Engineering Corp., Newark, N. J., met recently at the company's annual sales convention at Newark. Officials were encouraged by field reports indicating increased interest in air-conditioning for industries which were large buyers of such equipment before the depression.

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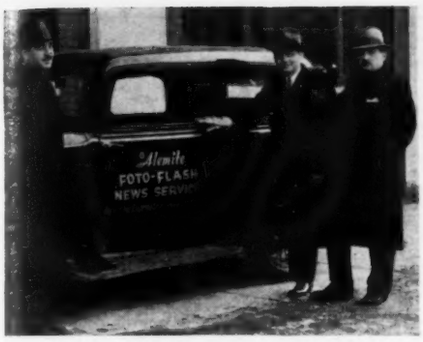
Alemite Sponsors Unusual Tour

Sponsored by Alemite Division of Stewart-Warner Corp., a group of en-



Left to right: Prince Hollingworth, director of industrial advertising; C. I. Kraus, industrial sales engineer; L. R. Light, art director.

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gineers and artists recently left Chicago in the Alemite Foto-Flash News Service automobile on an extended data-gathering tour of industrial plants in the Middle-West, East and South. These men will make ground observations of lubrication maintenance, take photographs for use in industrial advertising, and compile cost and efficiency data. Much of this data will go into Alemite's 1936 "Backed by Facts" program of promotion. The party includes C. I. Kraus, industrial engineer, L. R. Light, Stewart-Warner art director, H. Holzhauser, head cameraman.

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Engineering Trade News

Trane Co., La Crosse, Wis., heating and air-conditioning equipment manufacturers, announces that Norbert D. Downey, for many years advertising manager for the company, is now in complete charge of selling and merchandising the unit heater and gas-fired heater department.

Link-Belt Co., has moved its St. Louis, Mo., office from Olive St., to 1018-21 Louderman Bldg., to take care of expanding business. Howard L. Purdon is district sales manager. The Atlanta, Ga., plant recently sent out a letter to its customers in the Southeast announcing that the company has purchased a large stock of American steel pulleys, straight and crown face, and the American line of steel drop hangers and ring-oiling bearings. Pulley stock is complete to 48 in. dia. x 8 in. face.

Harnischfeger Corp., Milwaukee, Wis., has appointed R. L. Mead manager of the Chicago office, 20 N. Wacker Drive. Mr. Mead, will have charge of sales of excavators, hoists, cranes, motors, etc., produced by the Harnischfeger organization.

Hercules Powder Co., Wilmington, Del., annuonces that George C. O'Brien has been transferred from Wilmington to the New York office, 120 Broadway, where he will continue with the Naval Stores Department. Paul Mayfield, manager of the Chicago Naval Stores Department, succeeds Mr. O'Brien, and is in turn succeeded by G. Fred Hogg.

Lincoln Electric Co., Cleveland, Ohio, has moved its Pittsburgh, Pa., office from Fourth Ave., to larger quarters at 926 Manchester Blvd. F. M. Maichle is district manager.

Modine Mfg. Co., Racine, Wis., manufacturers of unit heaters, copper radiation, unit coolers, etc., announces the appointment of Charles J. Gaskell as representative in Memphis, Tenn. Mr. Gaskell, a graduate of the University of Wisconsin Engineering School, was for seven years plant engineer for Bemis (Tenn.) Cotton Mill, for five years superintendent of construction for Johns-Manville Co., St. Louis, and for twelve years sales engineer in Memphis.

Detroit Graphite Co., Detroit, Mich., has appointed E. C. Roberts vice-president in charge of sales, according to a recent announcement by Thurlow J. Campbell, president. Mr. Roberts was associated with the company for sixteen years prior to May, 1933, when he resigned as vice-president in charge of sales to become associated with Arco Co., Cleveland, Ohio, in the same capacity. G. W. Tabern, who has been with Detroit Graphite Co., since 1912, will continue to direct all product formulation and research and head the chemical and physical laboratories. A large group of former salesmen with technical experience have rejoined the company, which anticipates further definite upward trend in sales volume.

Republic Steel Corp., has appointed Charles W. East as district sales manager with headquarters at Houston, Tex., succeeding Robert E. Lanier, resigned. Mr. East for many years was assistant manager of sales in the Pipe Division at Birmingham, Ala. R. H. Sonneborn has been made special sales representative of the Tubular Division, with headquarters in the Republic Building, Cleveland, Ohio. He is a graduate of the University of Michigan, and for many years was with Colorado Fuel & Iron Co. and Youngstown Sheet & Tube Co. These announcements come from N. J. Clarke, vice-president in charge of sales.

Contract Welders, Inc., recently acquired Industrial Welding & Cutting Co., both of Cleveland, Ohio, according to an announcement by A. F. Davis, vice-president, Lincoln Electric Co., Cleveland. After April 1, equipment and organization will be consolidated and known as Contract Welders, Inc., with new quarters at 2545 East 79th St.

General Electric Co., announces the following changes in personnel at its Ft. Wayne and Philadelphia works: Neil Curry, Jr., for the last six years manager of the Philadelphia works, was made manager of the Fort Wayne works, succeeding Walter S. Goll, who is retiring from active duty after 38 years with the company, although he will be available for special assignments. R. V. Good, assistant manager of the Philadelphia unit, was made manager.

Timken Roller Bearing Co., Canton, Ohio, announces the appointment of S. C. Partridge as assistant general manager of the Industrial Division, with headquarters at Canton. He graduated from the McGill University Engineering School in 1925, and has been with Timken many years in engineering, sales, and executive capacities. F. B. Yates has been made manager of the New York district office, in charge of sales. R. W. Powers has been transferred from Canton, and will act as assitant to Mr. Yates.

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Engineering Mill News

Putnam (Conn.) **Woolen Corp.,** has awarded contract to the E. J. Cross Co., 82 Foster St., Worcester, Mass., for a new boiler plant. Joseph C. Bogue, 25 Huntington Ave., Boston, Mass., prepared the plans.

Roxbury Carpet Co., Saxonville, Mass., will proceed with the construction of a settling tank in the spring. Weston & Sampson, 14 Beacon St., Boston, Mass., is engineer.

Minneola Mfg. Co., Gibsonville, N. C., has constructed a large Community House, containing several club rooms, reading and game rooms, kitchen, and large banquet hall.

Carolina Cotton & Woolen Mills Co., is constructing a new power plant to serve the Spray woolen mill and Rhode Island Mill.

Springs Cotton Mills, Eureka plant, Chester, S. C., has begun the construction of five apartment houses for the operatives. These houses will be built at a cost of $5,000 each. The Rock Hill, S. C., Lumber Co. has the contract.

Kendall Co., Addison Plant, Edgefield, S. C., has won the prize from an insurance company for longest no-accident record, the cloth department having had no lost time accident in several years and the other departments having excellent records.

Riverside & Dan River Cotton Mills, Danville, Va., are planning to embark on a substantial housing program at Schoolfield in the near future. Officials of the corporation said two plans are under consideration, one the building of a group of small houses and the other the erection of a 35-family apartment house with three or four rooms to each apartment, at a cost of about $75,000.

FREE FOR THE ASKING—

READERS interested in the catalogs and other useful literature described on this page may secure copies by writing direct to the manufacturers mentioned.

Paint Reflection

Pittsburgh Plate Glass Co., Grant Bldg., Pittsburgh, Pa. A supplement to the "Glorified Light" booklets has been prepared in an effort to further the "Better Light—Better Sight" movement sponsored by the electrical industry. This consists of a color card in which the chips covering available shades are shown, along with reflection factors of the shades. The card is so arranged that the reflection factor of a painted surface can be determined easily.

Finishing Methods

James Hunter Machine Co., North Adams, Mass. January-February issue of *Hunter Counselor* containing articles on plant management, fulling with stainless steel mills, and crabbing wool dress goods.

Valves and Fittings

Cooper Alloy Foundry Co., 150 Broadway, Elizabeth, N. J. Illustrated booklet describing new line of stainless-steel valves and fittings.

Microscopes

Bausch & Lomb Optical Co., Rochester, N. Y. February *Educational Focus* carries an article, "Bringing Everyday Textiles into Classrooms," by J. D. Corrington, Ph.D., Ward's Natural Science Establishment. The article contains a number of projects, such as identifying unknown fibers, detection of inferiorities, determination of weave, spotting adulterants, dye penetration, etc.

Corrosion and Air-Conditioning

Republic Steel Corp., Cleveland, Ohio. Reprint of article, "Corrosion of Air-Conditioning Ducts," by Ralph W. Baker.

Boilers

Combustion Engineering Co., Inc., 200 Madison Ave., New York. Booklet containing description and settings for CE-Heine boilers.

Paint

Sherwin-Williams Co., Cleveland, Ohio. "Save-Lite" catalog prepared by Sherwin-Williams in cooperation with the Better Vision Institute and Better Light—Better Sight Council. Contains factual presentation of painting as a part of plant lighting, naming type of paint for walls and ceilings.

Nickel-Plated Steel

Lukens Steel Co., Coatesville, Pa. Bulletin T-4, describing methods for the fabrication of Lukens nickel-clad steel. Subjects discussed include standards of cladding, sizes of sheared plates, physical properties, cold working, annealing for cold pressing, surface cleaning, joining, welding, riveted joints, applications, etc.

V-Belt Drives

T. B. Wood's Sons Co., Chambersburg, Pa. Mailing piece and data sheet for V-belt drives.

Mercury-Vapor Lamps

Miller Co., Meriden, Conn. Catalog 870 covering complete line of fixture equipment for high-intensity mercury-vapor lamps in combination with ordinary Mazda lamps.

Lighting

Benjamin Electric Mfg. Co., Des Plaines, Ill. New 28-page bulletin giving complete data on new 400-watt high-intensity mercury-vapor lamp and fixtures. Includes illumination calculations, tables, and unretouched installation pictures.

Belts

J. E. Rhoads & Sons, 35 N. Sixth St., Philadelphia. A statement on the relative advantages of multiple V-belt and Tannate-Rockwood flat-belt drives.

Lubrication

Alemite Division of Stewart-Warner Corp., 1862 Diversey Parkway, Chicago. New 32-page catalog, "The Case of Alemite vs. Friction," containing information and prices.

Convertible Looms

Crompton & Knowles Loom Works, Worcester, Mass. Illustrated letter to the producers of woolen and worsted fabrics explaining how, with little added expense, Types W-2 and W-3 looms can be converted in less than 30 min. from 4x1 box automatic to 4x4 box pick and pick non-automatic, and *vice versa*. Letter also gives number of these looms sold to Jan. 1, 1936.

Wool Warping

Davis & Furber Machine Co., North Andover, Mass. February issue of Davis & Furber *News*, containing a floor plan for high-speed direct warping layout for woolen and worsted mills. Mills using this plan said to be averaging 200 to 300 yd. per min. on worsted yarns and 100 to 200 yd. per min. on woolen yarns.

Heating Doorways

L. J. Wing Mfg. Co., 154 W. 14th St., New York. Illustrated 8½x11 in. Bulletin D-1 describing a new heater for heating the inrush of cold air at large door openings, such as are found in shipping and receiving departments of mills.

Lubricating Oils

Sinclair Refining Co., Inc., 630 Fifth Ave., New York. First 1936 edition of *Work-Factor News* carrying photograph of 13 Foster winders and 101 coloring tufters in operation in Ingram Mfg. Co., Nashville, Tenn. Mill management accredited with saying, "Your charted textile lubricants have eliminated a multitude of oils on hand at a definite saving."

Instruments

Foxboro Co., Foxboro, Mass. New series of bulletins as follows: "Portable Recorders," "Square Root Planimeters," "Potentiometer Stabilog Records," "Remote Valve Control," "Vernier Valvactor," "Indicating Pyrometers," "Recording Thermometers," "Meters For Steam-Liquids-Gas," and "Recorder-Controller."

Conveyors

American Monorail Co., Athens Ave., Cleveland, Ohio. Illustrated 23-page catalog describing the Mono Tractor and electric drive for crane hoist and carrier units.

Ring Travelers

Victor Ring Traveler Co., 20 Mathewson St., Providence, R. I. January issue of *Traveler* containing article describing the Tipp system of yarn numbering, as proposed by TEXTILE WORLD in 1932 and since adopted by the National Bureau of Standards.

Winding

Universal Winding Co., Boston. Pamphlet devoted to No. 50 Leesona winder citing claims and giving specifications. Also, describes No. 150 winder and special attachments.

Valves

Haynes Stellite Co., Kokomo, Ind. Illustrated booklet designed to show why Haynes Stellited Valves should last "six to ten times longer."

Containers

Continental-Diamond Fibre Co., Newark, Del. Illustrated 31-page catalog devoted to descriptions and specifications of Diamond Fibre Hollow Ware, including boxes, trucks, cans, barrels, baskets, and trays.

Air Conditioning

Parks-Cramer Co., Fitchburg, Mass. January issue of *Parks' Parables* carrying article on textile testing laboratories.

Nickel Cast Iron

International Nickel Co., Inc., 67 Wall St., New York. January issue of *Nickel Cast Iron News* containing article graphically depicting acetic acid corrosion on plain cast iron as compared with nickel-alloy cast iron.

Nappers

Davis & Furber Machine Co., North Andover, Mass. Two new publications on nappers for cotton and wool, woven and knitted goods. The first, "Bulletin N-57—Forty-six Years of Napper Building," reviews the development of planetary nappers and napper clothing, and discusses the company's technical advisory service. The second, "Bulletin N-58—Davis & Furber 36-Roll Double-Action Belted Napper," gives details of the belted napper for use on blankets, flannels, shoe goods, drapery fabrics, etc., stressing the cylinder construction, bearings, and automatic stop motion.

Bearings

Fafnir Bearing Co., New Britain, Conn. Illustrated 197-page, 8½x11-in., Engineering Manual No. 35, containing comprehensive review of the principles affecting the selection, application, and operation of anti-friction bearings, and ball bearings in particular. The manual, containing vector diagrams, load formulas for belt drives, chain and rope drives, spur gears, bevel and helical gears, worm gears, etc., is divided into five parts. Section I reviews the history and development of anti-friction bearings. Section II is devoted to a broad analysis of bearing selection. Section III gives in detail dimensions, load ratings and functional characteristics. Section IV describes shaft-fitting methods, housing and mounting, and lubrication. Section V contains a separately bound list of prices and weights. It is pointed out that the volume is available without charge to executives and engineers responsible for bearing selection or maintenance. Requests should be sent to the above address on company letterheads.

Cork Cots

Sonoco Products Co., Hartsville, S. C. Illustrated booklet describing advantages of reinforced cork cots, and roll-covering and buffing equipment. Standard time rates per hour included.

Bearing Applications

Norma - Hoffmann Bearings Corp., Stamford, Conn. Booklet, illustrated with detailed machine drawings, showing bearing applications to all types of textile machinery.